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State of North Carolina
Department of Environment, Health and Natural Resources
Division of Environmental Management
512 North Salisbury Street • Raleigh, North Carolina 27611

James G. Martin, Governor
William W. Cobey, Jr., Secretary

George T. Everett, Ph.D
Director

December 23, 1991

Mr. R. D. Ferguson, Plant Manager
E. I. DuPont De Nemours & Co., Inc.
Post Office Box 800
Kinston, NC 28502

Subject: Permit No. WQ0005906
E. I. DuPont De Nemours & Co., Inc.
Kentec Site
Pump and Haul
Lenoir County

Dear Mr. Ferguson:

In accordance with your application received December 12, 1991, we are forwarding herewith Permit No. WQ0005906, dated December 23, 1991, to E. I. DuPont De Nemours & Co., Inc. for the construction and operation of the subject facility.

This permit shall be effective from the date of issuance until December 31, 1992, and shall be subject to the conditions and limitations as specified therein. Please pay particular attention to the monitoring requirements in this permit. Failure to establish an adequate system for collecting and maintaining the required operational information will result in future compliance problems.

If any parts, requirements, or limitations contained in this permit are unacceptable to you, you have the right to request an adjudicatory hearing upon written request within 30 days following receipt of this permit. This request must be in the form of a written petition, conforming to Chapter 150B of North Carolina General Statutes, and filed with the Office of Administrative Hearings, P.O. Drawer 27447, Raleigh, NC 27611-7447. Unless such demands are made this permit shall be final and binding.

One set of approved plans and specifications is being forwarded to you. If you need additional information concerning this matter, please contact Mr. Lindsay L. Mize at 919/733-5083.

Sincerely,

George T. Everett

cc: Lenoir County Health Department
Washington Regional Office Willie Hardison
Mr. Jeff Lautier, Groundwater Section
Facilities Assessment Unit
Training & Certification

NORTH CAROLINA

ENVIRONMENTAL MANAGEMENT COMMISSION

DEPARTMENT OF ENVIRONMENT, HEALTH AND NATURAL RESOURCES

RALEIGH

PUMP AND HAUL PERMIT

In accordance with the provisions of Article 21 of Chapter 143, General Statutes of North Carolina as amended, and other applicable Laws, Rules, and Regulations

PERMISSION IS HEREBY GRANTED TO

E. I. DuPont De Nemours & Co., Inc.
Lenoir County

FOR THE

construction and operation of a 7,200 GPD pump and haul with 2,000 GPD being reused in the E. I. DuPont De Nemours & Co., Inc.'s Kentec Facility and 5,200 GPD being transported to the E. I. DuPont De Nemours & Co., Inc.'s Kinston Wastewater Treatment Facility (NPDES Permit No. NC0003760) consisting of the construction of a temporary 300,000 gallon capacity dewatering holding lagoon, approximately 2,605 linear feet of 6 - inch perforated groundwater interceptor piping, two (2) simplex pump stations equipped with Myers 1-HP Model WE1012H pumps and high water alarms, a 600 gallon surge/pretreatment tank, a Ultrox F-325 UV/oxidation reactor with a 14 pound ozone generator and peroxide feed with Ultraviolet light, two (2) 165 - pound granular activated carbon canisters, a 16,000 gallon holding tank, associated piping, valves, and appurtenances to serve E. I. DuPont De Nemours & Co., Inc.'s Kentec Site with no discharge of wastes to the surface waters, pursuant to the application received December 12, 1991 and in conformity with the project plan, specifications, and other supporting data subsequently filed and approved by the Department of Environment, Health and Natural Resources and considered a part of this permit.

This permit shall be effective from the date of issuance until December 31, 1992 and shall be subject to the following specified conditions and limitations:

I. General Conditions

1. This permit shall become voidable unless the subject pump and haul activities are carried out in a manner which has been approved by this Division.

2. This permit is effective only with respect to the nature and volume of wastes described in the application and other supporting data.

3. The facilities shall be properly maintained and operated at all times.

4. This permit is not transferable. In the event there is a desire for the facilities to change ownership, or there is a name change of the Permittee, a formal permit request must be submitted to the Division of Environmental Management accompanied by an application fee, documentation from the parties involved, and other supporting materials as may be appropriate. The approval of this request will be considered on its merits and may or may not be approved.

5. No type of wastewater other than that from E. I. DuPont De Nemours & Co., Inc.'s Kentec's groundwater remediation shall be included in the pump and haul activities.

6. The permit shall become voidable unless the agreement between E. I. DuPont De Nemours & Co., Inc. and CSX Transportation or Conoco Transportation for the transportation of the treated groundwater is in full force and effect.

7. In the event that the facilities fail to perform satisfactorily, including the creation of nuisance conditions, the Permittee shall cease operation of all pump and haul activities and take such immediate corrective action, as may be required by this Division.

8. The groundwater collected by this system shall be treated in the E. I. DuPont De Nemours & Co., Inc.'s Kinston wastewater treatment plant (NPDES Permit NO. NC0003760) prior to being discharged into the receiving stream.

9. The remediated groundwater from the E. I. DuPont De Nemours & Co., Inc.'s Kentec site shall be introduced into the E. I. DuPont De Nemours & Co., Inc.'s Kinston wastewater treatment plant prior to any primary treatment components such that the remediated groundwater is conveyed through the entire treatment train. The introduction rate shall not exceed 5,200 gallons in a 24 hour day.

10. The Washington Regional Office, telephone no. 919/946-6481, shall be notified at least forty-eight (48) hours in advance of operation of the pump and haul activities so that an in-place inspection can be made. Such notification to the regional supervisor shall be made during the normal office hours from 8:00 a.m. until 5:00 p.m. on Monday through Friday, excluding State Holidays.

11. The Permittee is liable for any damages caused by a spill or failure of the pump and haul operations.

12. Adequate inspection, maintenance, and cleaning shall be provided by the Permittee to insure proper operation of the subject facilities.

13. The Permittee or his designee shall inspect the groundwater remediation and collection facilities to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of wastes to the environment, a threat to human health, or a nuisance. The Permittee shall keep an inspection log or summary including at least the date and time of inspection, observations made, and any maintenance, repairs, or corrective actions taken by the Permittee. This log of inspections shall be maintained by the Permittee for as long as the pump and haul activities are being conducted and shall be made available upon request to the Division of Environmental Management or other permitting authority.

14. Any duly authorized officer, employee, or representative of the Division of Environmental Management may, upon presentation of credentials, enter and inspect any property, premises or place on or related to the groundwater remediation and collection facilities at any reasonable time for the purpose of determining compliance with this permit; may inspect or copy any records that must be kept under the terms and conditions of this permit; and may obtain samples.

15. An accurate record of the pump and haul activities must be maintained by the Permittee, indicating:

    a) date groundwater is removed from the facility,
    b) name of facility from which groundwater is removed,
    c) name of facility receiving groundwater, and
    d) volume of groundwater removed,
    e) status of permanent disposal option.

These records shall be submitted to the Washington Regional Office of the Division of Environmental Management on or before the fifteenth (15) day of the following month.

16. Failure to abide by the conditions and limitations contained in this permit may subject the Permittee to an enforcement action by the Division of Environmental Management in accordance with North Carolina General Statute 143-215.6A to 143-215.6C.

17. The issuance of this permit does not preclude the Permittee from complying with any and all statutes, rules, regulations, or ordinances which may be imposed by other government agencies (local, state, and federal) which have jurisdiction.

18. The Permittee shall provide for the installation and maintenance of an audible and visual highwater alarm.

19. A leakage test shall be performed on the wetwells to insure that any exfiltration occurs at a rate which does not exceed twenty (20) gallons per twenty-four (24) hour per 1,000 gallons of tank capacity. The engineer's certification will serve as proof of compliance with this condition.

20. A copy of the approved plans and specifications shall be maintained on file by the Permittee for the life of the project.

21. <u>Noncompliance Notification:</u>

The Permittee shall report by telephone to the Washington Regional Office, at telephone no. 919/946-6481, as soon as possible, but in no case more than 24 hours or on the next working day following the occurrence or first knowledge of the occurrence of any of the following:

a. Any process unit failure, due to known or unknown reasons, that render the facility incapable of adequate wastewater treatment such as mechanical or electrical failures of pumps, aerators, compressors, etc.

b. Any failure of a pumping station, sewer line, etc. resulting in a by-pass directly to receiving waters without treatment of all or any portion of the influent to such station or facility.

Persons reporting such occurrences by telephone shall also file a written report in letter form within 15 days following first knowledge of the occurrence. This report must outline the actions taken or proposed to be taken to ensure that the problem does not recur.

22. Upon completion of construction and prior to operation of the subject groundwater remediation or pump and haul activities, a certification must be received from a professional engineer certifying that the permitted facilities have been installed in accordance with this permit, the approved plans and specifications. Mail the Certification to the Permits and Engineering Unit, P.O. Box 29535, Raleigh, NC 27626-0535.

23. The annual administering and compliance fee must be paid by the Permittee within thirty (30) days after being billed by the Division. Failure to pay the fee accordingly may cause the Division to initiate action to revoke this permit as specified by 15 NCAC 2H .0205 (c)(4).

24. As soon as is feasibly possible, all contaminated water shall be removed from the temporary lagoon. The Washington Regional Office Supervisor shall be notified when this operation is completed.

25. The amount of contaminated groundwater pumped into the holding lagoon shall be kept to a minimum, in order to minimize the hydraulic load, and thus, minimize further contamination of the underlying surficial aquifer.

26. Within 30 days of completely emptying the dewatering lagoon a plan shall be submitted to the Washington Regional Office Supervisor for approval outlining the closure of the dewatering holding lagoon.

27. Each transported vehicle (whether by rail car or truck) shall be sampled for the following parameters:

Parameter	Treated Effluent Monthly Average Concentration*	Maximum Daily Allowable Effluent Concentration
1,1-Dichloroethane (DCA)	14 ug/liter	21 ug/liter
1,1-Dichloroethylene (DCE)	14 ug/liter	21 ug/liter
1,4-Dioxane	200 ug/liter	300 ug/liter

*The following concentrations were determined from the Treatability Study outlined in the "Kentec Corrective Action Plan" , July 11, 1991, prepared by CH2M Hill for E. I. DuPont De Nemours & Co., Inc:

1,1-Dichloroethane (DCA)	7 ug/liter
1,1-Dichloroethylene (DCE)	7 ug/liter
1,4-Dioxane	100 ug/liter

28. The Permittee, at least six (6) months prior to the expiration of this permit, shall request its extension. Upon receipt of the request, the Commission will review the adequacy of the facilities described therein, and if warranted, will extend the permit for such period of time and under such conditions and limitations as it may deem appropriate.

29. This permit may be modified, or revoked and reissued to incorporate any conditions, limitations and monitoring requirements the Division of Environmental Management deems necessary in order to adequately protect the environment and public health.

II. Groundwater Compliance Schedule

1. E.I. DuPont De Nemours & Company, hereafter DuPont, desiring to comply with the legal requirements of the Environmental Management Commission, hereafter Commission, regarding underground water quality standards and with all pertinent provisions of the law and applicable rules of the Commission, does hereby agree to do and perform the following activity:

Complete construction of the groundwater collection/treatment and disposal system and commence operation	September 1, 1992

2. DuPont shall submit all progress reports and data required by the Division established under the provisions of this permit and/or implementation of the Remedial Action Study (RAS). The reports shall be submitted to the Washington Regional Office on a quarterly basis, which will begin with the first day of the month following the month the RAS was placed into operation.

3. DuPont shall properly operate and maintain the facility so as to minimize the impact of groundwater contamination.

4. DuPont shall submit no later than fourteen (14) days after the deadline for completing each item in Section II, Condition 1, certification to the Director of the Division of Environmental Management whether such item has been performed. This provision does not apply to the submission of monitoring reports.

5. In the event DuPont does not comply with any of the terms or conditions of this permit, it may be subject to civil penalties and all other sanctions provided by N.C. General Statutes §§ 143-215.2 and 143-215.6. DuPont agrees to pay penalties to the Commission according to the following schedule for failure to meet the deadlines set out in Section II, Condition 1:

Failure to complete construction of the	$1,000 per day/ 1st 30 days
groundwater treatment and disposal	$3,000 per day/ 2nd 30 days
system and commence operation	$5,000 per day/ 90 days

DuPont and the Commission agree that the stipulated penalties are not due if DuPont satisfies the Director of the Division of Environmental Management that noncompliance was caused solely by:

a. An act of God;

b. An act of war;

c. An intentional act or omission of a third party, but this defense shall not be available if the act or omission is that of an employee or agent of DuPont or if the act or omission occurs in connection with a contractual relationship with the permittee;

d. An extraordinary event beyond the permittee's control. Contractor delays or failure to obtain funding will not be considered as events beyond the permittee's control; or

e. Any combination of the above cases.

6. Pursuant to the terms of the Corrective Action Plan (CAP), DuPont will construct a groundwater interceptor trench (GIT) to prevent migration off-site within the superficial aquifer of dioxane, DCE and DCA. Water collected in the GIT will be collected, treated and disposed of pursuant to the terms of this permit and the CAP as approved by any superseding NPDES Permit or any other permit issued by the Commission subsequent to the date of this permit. Collection, treatment and disposal of treated water from the GIT shall be continued until the groundwater collected in the GIT reached the target clean-up levels specified in the approved CAP.

7. DuPont agrees that this permit shall pertain only to the source and property identified as the Kentec site located in Lenoir County which is owned by DuPont. Unless an applicable Special Order or permit has been issued by the Commission, violations of groundwater standards resulting from additional sources for which DuPont is responsible may subject DuPont to all sanctions provided by N.C. General Statutes §§ 143-215.2 and 143-215.6.

Permit issued this the 23rd day of December, 1991

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

Donald

George T. Everett, Director
Division of Environmental Management
By Authority of the Environmental Management Commission
PERMIT NO. WQ0005906

Permit No. WQ0005906
December 23, 1991
E. I. DuPont De Nemours & Co., Inc.
Kentec Site
Pump and Haul
Lenoir County

Engineer's Certification

_____I, _____, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction

of the project, _____, _____ for the
Project Name *Location*

Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the approved plans and specifications.

Signature_____ Registration No._____

Date _____

Guy Pearce
GW Section

State of North Carolina
Department of Environment, Health and Natural Resources
Northeastern Region
1424 Carolina Avenue, Washington, North Carolina 27889-1424

James G. Martin, Governor
William W. Cobey, Jr., Secretary

Lorraine G. Shinn
Regional Manager

DIVISION OF ENVIRONMENTAL MANAGEMENT

December 17, 1991

MEMORANDUM

TO: Carolyn McCaskill, Supervisor
Permits & Engineering Section

ATTENTION: Lindsey L. Mize

THROUGH: Jim Mulligan, Regional Supervisor Jim Mulligan

FROM: Alton R. Hodge, Environmental Engineer ARH

SUBJECT: WQ0005906
DuPont (Kentec Site)
Groundwater Remediation
Lenoir County

E. I. DuPont DeNemours & Company has submitted a request for a pump and haul permit. The request was submitted in a 12/12/91 meeting with central office, regional, and DuPont staff to discuss the permit request.

The application addresses the following:
Construct 2600 linear feet of groundwater interceptor line with 8 manholes and 2 pump stations, construct 300,000 gallon holding basin, install a 7,200 gpd chemical oxidation groundwater treatment plant, and the transport of treated groundwater, by rail car, to the wastewater treatment plant at the main complex (Permit No. NC0003760). Mr. Don Safrit informed the group in the 12/12/91 meeting that the treated wastewater could not go to the main plant complex until research on the permit showed it to be administratively possible. The staff for DuPont agreed to transport by rail car its industrial wastewater to Deep Water, New Jersey until the initial disposal plan was cleared. Mr. Lindsey Mize telephoned on 12/17/91 to inform me that Mr. Safrit has cleared up the administrative problem with the main complex wastewater treatment plant (NC0003760) accepting the treated groundwater from the Kentec Site.

I have reviewed the construction plans and specs, as well as the corrective action plan by CH2M Hill, and I recommend the Pump and Haul Permit request be granted.

lwa

P.O. Box 2188, Washington, North Carolina 27889-2188 Telephone 919-946-6481 FAX: 919-975-3716 / 919-946-6639

WaRO

DIVISION OF ENVIRONMENTAL MANAGEMENT

GROUNDWATER SECTION

December 13, 1991

M E M O R A N D U M

TO: Bob Cheek, Groundwater Section
Donald Safrit, Water Quality Section

FROM: Guy Pearce, WaRO Groundwater Section

SUBJECT: Proposed Pump and Haul Permit
DuPont-Kentec Groundwater Remediation System
Lenoir County, Pollution Incident No. 6334

As you know, DuPont-Kentec is currently in the process of obtaining the necessary permits to construct and operate a collection/treatment system to remediate contaminated groundwater at their facility, located off SR 1802, near Grifton, in Lenoir County. One phase of the project will involve dewatering the on-site surficial aquifer to allow the installation of a groundwater interception trench. The Washington Regional Office Groundwater Section has reviewed DuPont-Kentec's proposal to temporarily store the contaminated groundwater generated during the construction of the interception trench in an unlined holding pond. Based on the hydrogeological information available, our office does not object to this proposal. We do recommend, however; that any permit which allows construction of the holding pond to require DuPont-Kentec to minimize the volume of groundwater dewatered, and abandon the holding pond as soon as possible.

cc: Jim Mulligan
Alton Hodge

DRAFT Dec. 12, 1991 YCP

STATE OF NORTH CAROLINA	BEFORE THE NORTH CAROLINA ENVIRONMENTAL MANAGEMENT
COUNTY OF LENOIR	COMMISSION
IN THE MATTER OF)	
)	
E.I. duPONT de NEMOURS AND)	SPECIAL ORDER BY CONSENT
COMPANY, INC.)	EMC GW #_____
KENTEC PLANT, GRIFTON, N.C.)	
)	
REGARDING THE VIOLATION OF)	
THE UNDERGROUND WATER QUALITY)	
STANDARDS)	

This SPECIAL ORDER BY CONSENT (SOC) is made and entered into pursuant to North Carolina General Statute 143-215.2, by and between E.I. DuPont de Nemours and Company, Inc., hereinafter referred to as DuPont, and the Environmental Management Commission, an agency of the State of North Carolina, hereinafter referred to as the COMMISSION.

WITNESSETH:

I. DuPont and the COMMISSION do hereby stipulate as follows:

A. DuPont owns a parts cleaning facility known as the Kentec facility located on Rural State Paved Road 1802 in Grifton, Lenoir County, North Carolina. Operations at the Kentec facility began in 1972. James Enterprises, Inc., owned the Kentec facility from 1972 to 1981, and operated the facility from 1972 to 1985. DuPont purchased the Kentec facility in late 1981. Since the time of the purchase in 1981, James Enterprises, Inc. and, subsequently, Kentec, Inc., have operated the Kentec facility pursuant to a contract with DuPont.

B. This matter concerns groundwater contamination originating from use of the Kentec facility. The source of the contamination is, in part, wastewater discharged to land pursuant to a permit issued by the State of North Carolina.

C. The parts cleaning operation involved the use of triethylene glycol (TEG). 1,4-dioxane (dioxane) is formed as a byproduct when TEG is heated. 1,1,1-Trichloroethane (TCA) was used at the facility as a drying agent. Wastewater from the Kentec facility was, during the years 1972 through 1982, discharged directly to a ditch south of the main facility building at the Kentec site. Later in 1982, wastewater was treated biologically in a state-permitted drainfield system on the site. This drainfield system was operated through 1986. The drainfields were closed in 1986 and since that time wastewater has been shipped off-site for treatment and disposal.

DRAFT Dec. 12, 1991 JCP

D. Groundwater assessments voluntarily conducted by DuPont at the Kentec facility, beginning in April 1987, have detected in the surficial aquifer beneath the Kentec facility concentrations of dioxane in excess of the standard for Class GA waters. Additionally, concentrations of 1,1-dichloroethene (DCE) and 1,1-dichloroethane (DCA) were detected. Groundwater concentrations of dioxane, DCE, and DCA in the surficial aquifer outside the Kentec facility boundary have not been determined because neighboring property owners through their counsel have declined DuPont requests to take groundwater samples on their property. Samples taken from private drinking water supply wells on neighboring property have detected no concentrations of dioxane, DCE or DCA.

E. Concentrations of dioxane and DCE have been detected within the boundaries of the Kentec site in excess of the maximum allowable contaminant levels adopted at 15A N.C.A.C. 2L. 0202(g) for Class GA waters (no maximum allowable contaminant level for Class GA has been adopted for DCA).

F. Since the purchase of the Kentec facility, DuPont has retained technical consultants to assess groundwater contamination resulting from the disposal of wastewater, and to audit wastewater sources, handling operations, and physical facilities at the Kentec plant. Acting upon the results of the assessment and audit, DuPont has, among other things, removed three underground concrete tanks used as a part of the wastewater disposal system and excavated soil around the location of two of the underground tanks where low concentrations of dioxane were detected. In addition, DuPont has excavated soil and sludge from the area of a 1987 spill of TEG, repaired concrete containment areas beneath above-ground storage tanks, and sealed or otherwise secured, dikes, wetwells and floors through which contaminants might potentially escape.

G. On July 15, 1991, DuPont submitted to the Washington Regional Office of the Department of Environment, Health and Natural Resources ("DEHNR"), a Corrective Action Plan ("CAP") prepared pursuant to 15A N.C.A.C. 2L .0106(c)(2).

H. On August 20, 1991, the DuPont CAP for the Kentec facility was approved by the Washington Regional Office of DEHNR.

II. DuPont, desiring to comply with the legal requirements of the COMMISSION regarding underground water quality standards and with all pertinent provisions of the law and applicable rules of the COMMISSION, does hereby agree to do and perform the following activities:

DRAFT Dec 12, 1991 JCP

Task	Deadline
Submit all permit applications required by the Division of Environmental Management and/or all other permit applications or authorizations that may be required by other agencies	January 1, 1992
Complete construction of the groundwater collection/treatment and disposal system and commence operation	September 1, 1992

III. "DuPont shall submit all progress reports and data required by the Division established under the provisions of permits issued for the construction and/or implementation of RAS. The reports shall be submitted to the Washington Regional Office on a quarterly basis, which will begin with the first day of the month following the month the RAS was placed in operation."

IV. DuPont shall properly operate and maintain the facility so as to minimize the impact of groundwater contamination during the period this SOC is in effect.

V. This SOC shall remain in effect for a period of five years from the date of issuance. If prior to 180 days before the expiration of the SOC, all the requirements of Paragraph II have not been met, then DuPont and the COMMISSION shall enter into an extension of this SOC, or shall enter into a subsequent SOC, for a term of two years, and subsequent terms if necessary, until such requirements are met.

VI. DuPont shall submit no later than fourteen (14) days after the deadline for completing each item required in Paragraph II certification to the Director of the Division of Environmental Management whether such item has been performed. This provision does not apply to the submission of monitoring reports.

VII. In the event DuPont does not comply with any of the terms of this SOC, it may be subject to civil penalties and all other sanctions provided by N.C. General Statute 143-215.2 and 143-215.6. DuPont agrees to pay penalties to the COMMISSION according to the following schedule for failure to meet the deadlines set out in Paragraph II:

DRAFT Dec. 12, 1991 JCP

Requirements	Stipulated Penalties
Failure to submit permit application required by the Division of Environmental Management	$100 per day first 5 days $500 per day thereafter
Failure to complete construction of the groundwater/treatment and disposal system and commence operation	$5,000 per day

DuPont and the COMMISSION agree that the stipulated penalties are not due if DuPont satisfies the Director of the Division of Environmental Management that noncompliance was caused solely by:

a. An act of God;

b. An act of war;

c. An intentional act or omission of a third party, but this defense shall not be available if the act or omission is that of an employee or agent of the defandant or if the act or omission occurs in connection with a contractual relationship with the permittee;

d. An extraordinary event beyond the permittee's control. Contractor delays or failure to obtain funding will not be considered as events beyond the permittee's control; or

e. Any combination of the above cases.

VIII. Pursuant to the terms of the CAP, DuPont will construct a groundwater interceptor trench (GIT) to prevent migration off-site within the surficial aquifer of dioxane, DCE and DCA. Water collected in the GIT will be collected, treated and disposed of pursuant to the terms of this SOC and the CAP as approved any superseding NPDES permit or other permit issued by the COMMISSION subsequent to the date of this SOC. Collection, treatment and disposal of treated water from the GIT shall be continued until the groundwater collected in the GIT reaches the target clean-up levels specified in the approved CAP.

DRAFT Dec. 12, 1991 GCP

IX. DuPont agrees that this SOC shall pertain only to the source and property identified in Paragraph I.B. of this SOC. Unless an applicable Special Order or permit has been issued by the COMMISSION, violations of groundwater quality standards resulting from additional sources for which DuPont is responsible may subject DuPont to all sanctions provided by N.C. General Statute 143-215.2 and 143-215.6

X. DuPont hereby agrees to waive any rights it may have to seek judicial review to challenge this SOC or to seek a stay of enforcement of this SOC. However, the COMMISSION acknowledges that this waiver does not prohibit DuPont from seeking amendment of this SOC if any regulatory standards or other grounds upon which this SOC is based are changed subsequent to its execution. In such cases, DuPont may petition that the SOC be amended to reflect those regulatory or other grounds for change or upon other grounds satisfactory to the COMMISSION.

XI. This SOC is not transferable. Any successive owners of the subject property must apply to the COMMISSION for a separate SOC.

XII. If DuPont proposes to change any of the activities set out in Paragraph II above DuPont must apply to the COMMISSION for a modification to this SOC.

This is the ____ day of _____, 1991.

E.I. duPont de Nemours and Company, Inc.

ATTEST: By:_____

_____ _____
(Title)

_____
(Address)

_____

_____

APPROVED AND ACCEPTED:

BY:_____
George T. Everett
Director, Division of Environmental Management

Approved by the Environmental Management Commission on the ____ day of _____, 1991.

Dec 12, 1991

Lindsay L. Mize	DEM - Raleigh	919/733-5083
Don Safrit	DEM - P&E	919/733-5083
Jerry Henderson	DuPont-Kinston	919/522-6263
Jay Vandeven	CH2M HILL	703/471-1441
John Richards	DuPont	919-522-[illegible]
Dick Hargitt	DuPont	919-522-6725
Jim Mulligan	DEM	946-6481
A R Hodge	DEM-WQ-WaRO	946-6481
Guy Pearce	DEM-GW WaRO	946-6481
Carolyn McCaskill	DEM-P&E	(919)733-5083

M E M O R A N D U M

CH2MHILL

TO: John Rudolph/Du Pont

COPIES: Jerry Henderson/Du Pont

FROM: Doug Dronfield

DATE: December 4, 1991

SUBJECT: Holding Pond for Construction Dewatering

PROJECT: Kentec

As a result of discussions with the state on December 2, 1991, Du Pont has asked CH2M HILL to address two issues. The first is whether placing the water that is collected during dewatering into an unlined pit would cause groundwater to migrate offsite beyond the ability of the trench to collect it in the future. The second issue is what will be done with any sediment that collects in the bottom of the pit.

We had Dr. John Glass, the one who prepared our numerical model of the Kentec groundwater interciptor trench, evaluate the impact of placing 247,000 gallons (100' x 100' x 3') on top of the water table on the movement of groundwater particles at the Grant property boundary. We took the conservative approach by assuming no unsaturated conditions existed beneath the pit.

Under normal wet season (higher water table) conditions the hydraulic gradient is approxomately 0.0004 at the property boundary nearest the pit. With a hydraulic conductivity of 10 ft/day and porosity of 0.25, a water particle at the property line would travel approximately 1.07 feet in 60 days.

A transient model run of the increase in water particle movement at the property boundary was performed for a 60 day period. Two days after the pit is filled, the groundwater velocity at the property boundary would increase by 8 times over the preexisting rate, but the distance that a water particle would move is only 0.23 feet. After 60 days, the velocity is down to 2.5 times the preexisting rate (lower gradient as the head in the pit is not as high as at day 1). The distance that a water particle would have travelled at the property boundary is only approximately 4 feet.

The filled pit has only caused a water particle at the site boundary to move an additional 3 feet (4 feet - 1 foot) of a water particles movement at the property boundary at the end of 60 days. This 3 foot movement beyond the property boundary is well within the radius of influence (approximately 150 feet in the southerly direction) of the collection trench.

The total amount of water that is anticipated to have infiltrated during this 60 day period is 110,000 gallons.

The second issue at the site, is the potential for residual soil contamination in the pit after its use. We believe that the potential for soil contaminatin is minimal due to the properties of the contaminants and their current groundwater concentrations. 1,4-Dioxane is considered to be completely misicible in water and therefore would not be expected to adsorb to soils in appreciable amounts. Similarly, DCE and DCA are considered to be relatively mobile in water and should not appreciably adsorb to the subsurface soil. This is supported by the fact that high concentrations of these compounds have not been detected in the soil samples collected at the site.

MEMORANDUM

To: Doug Dronfield WDC (OFFICE)

From: John Glass WDC (OFFICE)

Date: 12/3/91 Project No. ATL 22398.GP.01

Re: Effects of onsite water disposal

I have analyzed the effects of the disposal of 247,000 gal. of water in a 100'x100'- pit approximately 30 ft from the property line at the Kentec site.

Under normal wet season conditions the hydraulic gradient is approximately 1/2250 at the property line nearest the pit. With a hydraulic conductivity of 10 ft/day and porosity of 0.25 a water particle at the property line would travel approximately 1.07 feet in 60 days.

Pouring water into the pit increases the gradient at the property line and would cause the same particle to move about 4 feet in 60 days. The results of a transient model run show the following sequence of events:

Time	Gradient	Velocity	Δt (days)	Distance Moved
1.76 days	1/300	0.133 ft/d	1.76	0.23'
12.01 days	1/600	0.067 ft/d	10.24	1.02'
35.44 days	1/800	0.050 ft/d	23.43	1.37'
60.00 days	1/900	0.044 ft/d	24.56	1.15'
				3.77 feet

30.3 → 28.4 = 1.5' × 10,000 = 15,000 = 110,000 gal

REV 7/84 FORM 3

145

DIVISION OF ENVIRONMENTAL MANAGEMENT

November 12, 1991

MEMORANDUM

TO: Perry Nelson

FROM: Willie Hardison WH

SUBJECT: Dupont-Kentec SOC

On October 16, 1991, the Washington office received the above Draft SOC from Dupont, Inc. Our office is submitting this proposal for review by the central office. Also, included are the Region's comments for your consideration. They are as follows:

Section I - No comments

Section II - The proposed timetable appears to be reasonable, however, it is our suggestion that a deadline for submitting quarterly progress reports also be stipulated. The following is suggested wording:

"Dupont shall submit all progress reports and data required by the Division established under the provisions of permits issued for the construction and/or implementation of RAS. The reports shall be submitted to the Washington Regional Office on a quarterly basis, which will begin with the first day of the month following the month the RAS was placed in operation."

OK PN

Section III No comments

Section IV Our office recommends that the proposed 60 days be changed to 180 days.

Have ahead 90 days? PN

Section V No comments

Section VI The penalties for failure to comply with the terms of the SOC seems reasonable. However, it is suggested that a $2000 per day penalty for failure to submit quarterly reports also be stipulated in the SOC.

agreed PN

Section VII No comment

Section VIII No comment

Section IX No comment

Section X No comment

Section XI states, "This SOC is not, and in no way may be construed as an admission by DuPont of liability or quilt for any violation of any statute or regulation regarding groundwater quality standards, or any violation of the terms of any permit issued by the COMMISSION.

It is suggested that we solicit Peter Rascoe's opinion on this Section. It appears to me to be a very broad statement and may have a bearing on other permitting activities that are not necessarily relevant to this particular matter.

Approved and accepted section - Since the SOC primarily addresses NCAC 2L (Groundwater Quality Standards), it is my understanding the Director of the Division of Environmental Management has signing authority.

Should you have any questions, please don't hesitate to call Guy Pearce or me.

WAH:ekw

cc: Roger Thorpe
Jim Mulligan
WaRO

DIVISION OF ENVIRONMENTAL MANAGEMENT

GROUNDWATER SECTION

November 4, 1991

M E M O R A N D U M

TO: Willie Hardison

FROM: Guy Pearce

SUBJECT: DuPont-Kentec SOC

I have reviewed the subject SOC document and offer the following comments for your consideration:

1. Section II - The proposed timetable appears to be reasonable and I have no objections to it.

2. Sections III, IV, and V, - These statements appear to be standard SOC language. I have no objections.

3. Section VI - The penalties for failure to comply with the terms of the SOC seem reasonable to me; however, I have limited experience in this area.

4. Section VII does not provide sufficient detail as to the design of the Interceptor Trench, Treatment Plant, and Methods of Disposal for the treated Groundwater. In particular, does this section address the problem of disposal of treated groundwater prior to the issuance of a NPDES Permit? As you know, this has been a sticking point thus far. The SOC should reference specific pages and/or sections of the Corrective Action Plan to minimize the possibility of any misunderstandings. In addition, the Office of General Counsel should review this section prior to approval.

5. Sections VIII, IX, and X , are standard, no objections.

6. Section XI states that the SOC should not be taken as an admission of guilt on the part of DuPont Kentec for any violation(s) of any statutes or regulations. Although this point should not be a problem with regard to groundwater remediation at the facility, DuPont-Kentec is responsible for the groundwater quality violations that have occurred.

LAW OFFICES OF MARVIN BLOUNT, JR.
ATTORNEYS AT LAW
400 WEST FIRST STREET
P. O. DRAWER 58
GREENVILLE, NORTH CAROLINA
27835-0058

MARVIN BLOUNT, JR.
JOSEPH T. EDWARDS
JAMES F. HOPF
SHARRON R. EDWARDS

TELEPHONE (919) 752-6000
FAX (919) 752-2174

September 23, 1991

HAND DELIVERY

Mr. Guy Pearce
Division of Environmental Management
1424 Carolina Avenue
Washington, NC 27889

RE: Du Pont/Kentec Site
Lenoir County

Dear Mr. Pearce:

Per your conversation with Buddy Brooks, of our office, on Monday morning, September 23, 1991, this letter will serve as a formal request to allow us access to the DEM files pertaining to the cleanup and remediation plan for the Du Pont/Kentec facility in Lenoir County.

If you have any questions, please feel free to contact either Mr. Brooks or me.

Thank you.

Sincerely yours,

James F. Hopf

JFH/pr

WaRO files

DIVISION OF ENVIRONMENTAL MANAGEMENT

GROUNDWATER SECTION

September 23, 1991

M E M O R A N D U M

TO: Jim Mulligan, WaRO Regional Supervisor
Roger Thorpe, WaRO Water Quality Section Supervisor
Dennis Ramsey, Central Office Water Quality Section
Jeff Lautier, Central Office Groundwater Section

FROM: Guy Pearce, WaRO Groundwater Section GCP

SUBJECT: DuPont-Kentec
Proposed S.O.C.

As you know, on Wednesday, September 18, 1991, an intradepartmental meeting was held in the Archdale Building to discuss details of a Special Order by Consent proposed by representatives of DuPont-Kentec, addressing groundwater remediation at their facility. This memo is a recap of that meeting.

The proposed S.O.C. would allow the following:

1. Installation of a groundwater collection gallery (trench), to recover contaminated groundwater.

2. A treatment plant consisting of ozone injection, which would essentially reduce the contaminates to carbon dioxide and water, and a carbon filtration unit to remove any untreated contaminates.

3. Discharge of 1500 - 5500 gallons per day of treated groundwater to a drainage ditch adjacent to the facility. This discharge would be allowed by the S.O.C. until a NPDES permit was obtained.

There were no objections to the collection gallery and treatment plant, however: the proposal to discharge the treated groundwater to the drainage ditch raised several concerns. They were as follows:

1. One of the criteria for a NPDES permit is that there are no other feasible alternatives for wastewater disposal available. This test does not appear to have been applied at this facility. A Non-discharging wastewater disposal system appears to be a viable alternative at this site. Pump and Haul, although costly, could also be used.

2. The NPDES permitting process requires Public Notice, which allows other agencies and concerned groups and citizens an opportunity to express their concerns and/or objections prior to permit issuance. Approval of the proposed S.O.C. would, in effect, circumvent this process and, at a minimum, restrict public participation.

3. Approval of the S.O.C. would, in effect, grant DuPont-Kentec a temporary NPDES permit while they are in the process of actually obtaining one. It does not appear to be legally possible to grant a NPDES permit unless the mandated process is followed. The Office of General Counsel should be consulted about this point.

In order to address the above concerns, a meeting with representatives of DuPont-Kentec has been scheduled on September 30, 1991, at 10:00, in the Archdale Building. Please contact me to confirm that you or an alternate will be able to attend. I will contact the Office of General Counsel to arrange for a legal representative of D.E.M. to be present. If you have any questions, or suggestions, concerning this matter, please call me. I can be reached at (919) 946-6481.

WARO

AUG 30 1991

State of North Carolina
Department of Environment, Health, and Natural Resources

Division of Environmental Management
512 North Salisbury Street • Raleigh, North Carolina 27611

James G. Martin, Governor
William W. Cobey, Jr., Secretary

George T. Everett, Ph.D.
Director

August 29, 1991

Doug Dronfield
CH2M Hill
P.O. Box 4400
Reston , VA 22090

Subject: Speculative Limits for Potential Dupont Groundwater Remediation Discharge to Beaverdam Branch
Lenoir County

Dear Doug:

In regard to our conversation August 20, 1991, I am submitting the speculative limits for the potential surface water discharge permit for the Dupont facility. The discharge will consist of contaminated groundwater; the groundwater has been contaminated primarily by triethylene glycol, which is used to clean parts/machinery for the manufacture of Dacron fibers.

Dupont must submit an engineering report outlining all alternatives to a NPDES permit. This report should include the feasibility of connection to the plant's existing 3.6 MGD treatment facility.

Because USGS flows are not available at this time for the proposed point of discharge, a worst case scenario for a discharge permit has been developed based on a zero flow stream. The limitations will receive no benefit of dilution. Should the Dupont facility receive a permit, the following limits would be applicable:

	mon avg.	daily max
Flow (MGD):	0.0072	
Oil and Grease (mg/l):	30	60
pH (SU):		6-9
Toluene (µg/l):		11
Benzene (µg/l):		71.4
1,1-dichloroethene (µg/l):		3.2

Quarterly Chronic Value Testing at 90% (*Ceriodaphnia dubia*)

(cont'd.)

Monitor: 1,1-dichloroethane, 1,4-dioxane, acetone, chloroethane, 2-butanone, 4-methyl-2-pentanone

Flow should be monitored continuously. Oil and Grease, and pH should be monitored twice per month. Chemical parameters and toxicity testing should be performed quarterly. Monitoring for chemical parameters should coincide with toxicity testing.

These limits are speculative only and must be approved by the Permits and Engineering Unit and the Washington Regional Office. If you have any questions regarding these speculative limits, please contact me at (919) 733-5083.

Best Regards,

Susan A. Wilson

Susan A. Wilson
Technical Support Branch, Water Quality Section
NCDEM

cc: Jim Mulligan, Washington Regional Office
Dale Overcash, Permits and Engineering Unit

BT please put in permit book
pm

WASHINGTON OFFICE
SEP 30 1991
E.I.

State of North Carolina
Department of Environment, Health and Natural Resources
Division of Environmental Management
512 North Salisbury Street • Raleigh, North Carolina 27611

James G. Martin, Governor
William W. Cobey, Jr., Secretary

George T. Everett, Ph.D
Director

September 20, 1991

Mr. R. D. Ferguson, Plant Manager
E. I. DuPont - Kentec Site
Post Office Box 800
Kinston, NC 28502-0800

Subject: Permit No. WQ0005394
E. I. DuPont - Kentec Site
Pump and Haul
Lenoir County

Dear Mr. Ferguson:

In accordance with your application received July 25, 1991, we are forwarding herewith Permit No. WQ0005394, dated September 20, 1991, to E. I. DuPont for the continued operation of the subject pump and haul facility.

This permit shall be effective from the date of issuance until August 31, 1996, shall hereby void Permit No. 12725 issued May 11, 1987, and shall be subject to the conditions and limitations as specified therein. Please pay particular attention to the monitoring requirements in this permit. Failure to establish an adequate system for collecting and maintaining the required operational information will result in future compliance problems.

If any parts, requirements, or limitations contained in this permit are unacceptable to you, you have the right to request an adjudicatory hearing upon written request within 30 days following receipt of this permit. This request must be in the form of a written petition, conforming to Chapter 150B of North Carolina General Statutes, and filed with the Office of Administrative Hearings, P.O. Drawer 27447, Raleigh, NC 27611-7447. Unless such demands are made this permit shall be final and binding.

If you need additional information concerning this matter, please contact Mr. Lindsay L. Mize at 919/733-5083.

Sincerely,

George T. Everett

George T. Everett

cc: Lenoir County Health Department
Washington Regional Office

NORTH CAROLINA

ENVIRONMENTAL MANAGEMENT COMMISSION

DEPARTMENT OF ENVIRONMENT, HEALTH AND NATURAL RESOURCES

RALEIGH

PUMP AND HAUL PERMIT

In accordance with the provisions of Article 21 of Chapter 143, General Statutes of North Carolina as amended, and other applicable Laws, Rules, and Regulations

PERMISSION IS HEREBY GRANTED TO

E. I. DuPont
Lenoir County

FOR THE

continued operation of a 4,000 GPD pump and haul (wastewater consists of 98% water and 2% triethylene glycol) from the cleaning of metal parts used in the manufacture of polyester fibers consisting of a railroad spur and a 10,000 gallon capacity storage tank, appropriate pumps with high water alarms, associated piping, valves, and appurtenances to serve E. I. DuPont with no discharge of wastes to the surface waters, pursuant to the application received July 25, 1991 and in conformity with the project plan, specifications, and other supporting data subsequently filed and approved by the Department of Environment, Health and Natural Resources and considered a part of this permit.

This permit shall be effective from the date of issuance until August 31, 1996, and shall be subject to the following specified conditions and limitations:

1. This permit shall become voidable unless the subject pump and haul activities are carried out in a manner which has been approved by this Division.

2. This permit is effective only with respect to the nature and volume of wastes described in the application and other supporting data.

3. The facilities shall be properly maintained and operated at all times.

4. This permit is not transferable. In the event there is a desire for the facilities to change ownership, or there is a name change of the Permittee, a formal permit request must be submitted to the Division of Environmental Management accompanied by an application fee, documentation from the parties involved, and other supporting materials as may be appropriate. The approval of this request will be considered on its merits and may or may not be approved.

5. No type of wastewater other than that from E. I. DuPont shall be included in the pump and haul activities.

6. In the event that the facilities fail to perform satisfactorily, including the creation of nuisance conditions, the Permittee shall cease operation of all pump and haul activities and take such immediate corrective action, as may be required by this Division.

7. The wastewater consisting of 98% water and 2% triethylene glycol from the cleaning of metal parts used in the manufacture of polyester fibers collected by this system shall be treated in the E. I. DuPont/Chambers Works Wastewater Treatment Plant located in Deepwater, New Jersey (Permit No. NJ0005100) prior to being discharged into the receiving stream.

8. The Permittee is liable for any damages caused by a spill or failure of the pump and haul operations.

9. Adequate inspection, maintenance, and cleaning shall be provided by the Permittee to insure proper operation of the subject facilities.

10. The Permittee or his designee shall inspect the E. I. DuPont - Kentec Site collection facilities to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of wastes to the environment, a threat to human health, or a nuisance. The Permittee shall keep an inspection log or summary including at least the date and time of inspection, observations made, and any maintenance, repairs, or corrective actions taken by the Permittee. This log of inspections shall be maintained by the Permittee for as long as the pump and haul activities are being conducted and shall be made available upon request to the Division of Environmental Management or other permitting authority.

11. Any duly authorized officer, employee, or representative of the Division of Environmental Management may, upon presentation of credentials, enter and inspect any property, premises or place on or related to the E. I. DuPont - Kentec Site collection facilities at any reasonable time for the purpose of determining compliance with this permit; may inspect or copy any records that must be kept under the terms and conditions of this permit; and may obtain samples.

12. An accurate record of the pump and haul activities must be maintained by the Permittee, indicating:

    a) date wastewater is removed from the facility,
    b) name of facility from which wastewater is removed,
    c) name of facility receiving wastewater, and
    d) volume of wastewater removed,

    These records shall be submitted to the Washington Regional Office of the Division of Environmental Management on or before the thirty-first (31) day of January of the following year.

13. Failure to abide by the conditions and limitations contained in this permit may subject the Permittee to an enforcement action by the Division of Environmental Management in accordance with North Carolina General Statute 143-215.6.

14. The issuance of this permit does not preclude the Permittee from complying with any and all statutes, rules, regulations, or ordinances which may be imposed by other government agencies (local, state, and federal) which have jurisdiction.

15. The Permittee shall provide for the maintenance of an audible and visual highwater alarm.

16. A copy of the approved plans and specifications shall be maintained on file by the Permittee for the life of the project.

17. **Noncompliance Notification:**

The Permittee shall report by telephone to the Washington Regional Office, at telephone no. 919/946-6481, as soon as possible, but in no case more than 24 hours or on the next working day following the occurrence or first knowledge of the occurrence of any of the following:

a. Any process unit failure, due to known or unknown reasons, that render the facility incapable of adequate wastewater treatment such as mechanical or electrical failures of pumps, aerators, compressors, etc.

b. Any failure of a pumping station, sewer line, etc. resulting in a by-pass directly to receiving waters without treatment of all or any portion of the influent to such station or facility.

Persons reporting such occurrences by telephone shall also file a written report in letter form within 15 days following first knowledge of the occurrence. This report must outline the actions taken or proposed to be taken to ensure that the problem does not recur.

18. The annual administering and compliance fee must be paid by the Permittee within thirty (30) days after being billed by the Division. Failure to pay the fee accordingly may cause the Division to initiate action to revoke this permit as specified by 15 NCAC 2H .0205 (c)(4).

19. The issuance of this permit does not preclude the Permittee from complying with any and all statutes, rules, regulations, or ordinances which may be imposed by other government agencies (local, state, and federal) which have jurisdiction.

20. The Permittee, at least six (6) months prior to the expiration of this permit, shall request its extension. Upon receipt of the request, the Commission will review the adequacy of the facilities described therein, and if warranted, will extend the permit for such period of time and under such conditions and limitations as it may deem appropriate.

21. Issuance of this permit hereby voids Permit No. 12725 issued May 11, 1987.

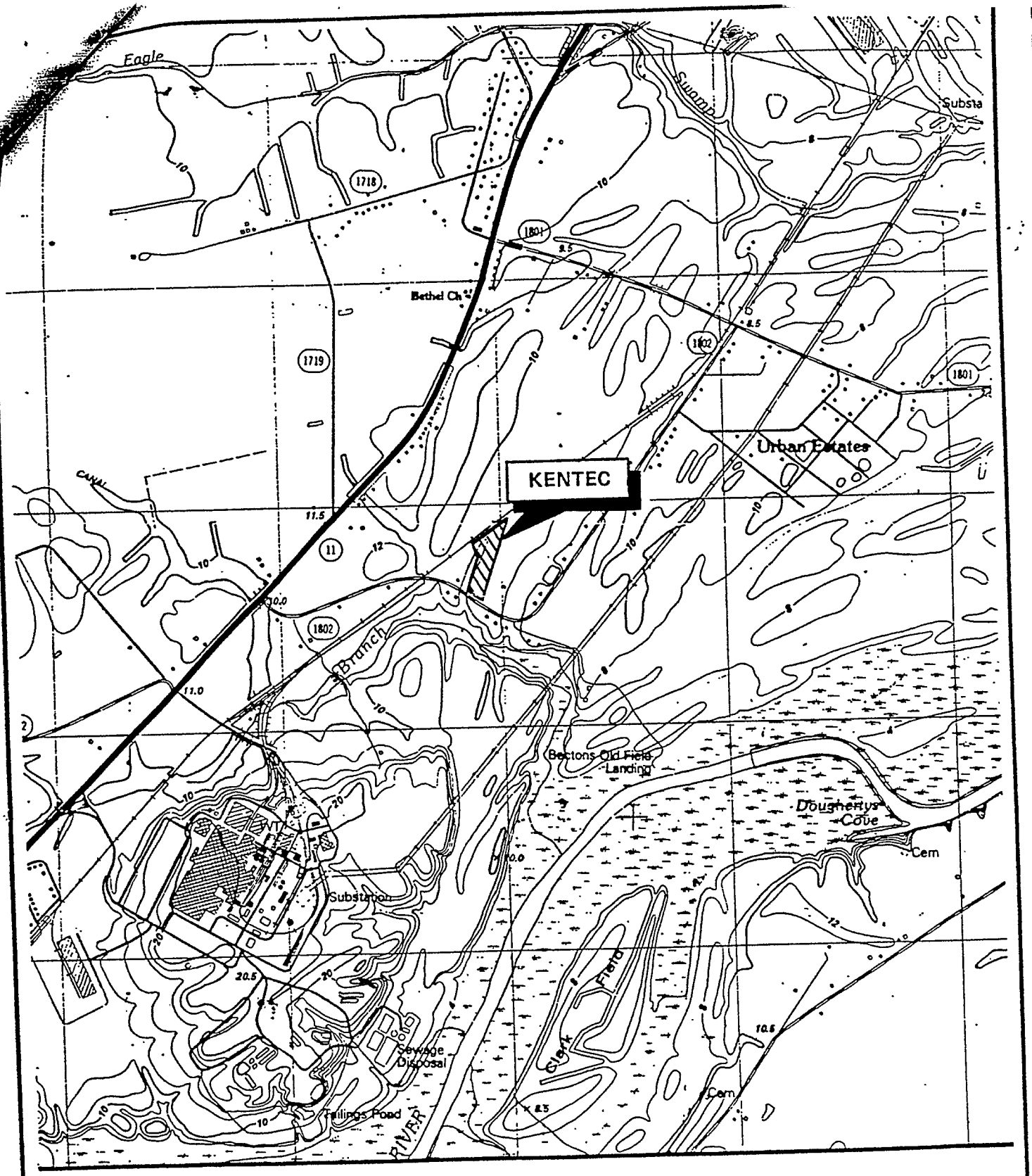
Permit issued this the 20th day of September, 1991

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

George T. Everett

George T. Everett, Director
Division of Environmental Management
By Authority of the Environmental Management Commission

Permit No. WQ0005394



LEGEND

Source: USGS Grifton Quadrangle
North Carolina, 1983
Contour Interval — 2 Meters

SCALE:

1000 0 1000

½ inch equals 1000 feet

- N -

Figure 1
KENTEC SITE LOCATION

Page ES-4 1,4-Dioxane detected migrating through drainageways to Beaverdam Branch

Figure ES-2 dioxane appears to be more mobile than other constituents?

Table ES-1 1,4-dioxane GW standard 7 ug/L

Page 1-5 Sources of contamination

Drainfields

Rinsewater settling tanks

wet well - Fiberglass liner installed to prevent leakage

Piping - Two cracks found - pipe was replaced

Subsurface Powdered metal

Surface disposal

containment Areas

✓ Page 3-2 Need monitoring wells east of water supply - Surficial

✓ Page 3-4 Need to design feeder GW flow

✓ Manganese & iron high in areas of high 1,4-dioxane - any correlations, soils were High throughout the site

Page 4-4 contamination South & Eastern boundaries need defining

4-4 Acetone found in 1987 - believed to result of cleaning sampling equipment - Has it been detected since

4-4 Acetone & methylene chloride detected in deep well TEG was the only compound detected in WW-14B @ 1900 ug/l January 1999

p. 4-5 Reedee Flow pceat defining

6-1 Recommendation

A5 Vapors in shallow wells 15 & 16 Away From [illegible]
Kentec Plant site

B-2 deep wells

Dupont - Kentec Aug. 29, 1991

Guy Pearce - DEM - GW		(919) 946-6481
Willie Hardison	DEM - GW	(919) 946-6481
Alton Hodge	DEM - Water Quality	919-946-6481
Craig Bromby	Moore & Van Allen	919/828-4481
Jan Kneil	Dupont	(919) 522-6294
E. HAROLD MILLS	DuPONT	(919) 522-6382
JERRY HENDERSON	DuPOOT	(919) 522-6823
DICK HARGITT	"	919-522-6725
Jimmy Garris	"	919-522-6263
John Rudolph	"	919-522-6238

* meeting held to discuss the RAP (on-site) approval, and how to proceed with the development of a S.O.C.

WaRO files

State of North Carolina
Department of Environment, Health and Natural Resources
Northeastern Region
1424 Carolina Avenue, Washington, North Carolina 27889

James G. Martin, Governor
William W. Cobey, Jr., Secretary

Lorraine G. Shinn
Regional Manager

DIVISION OF ENVIRONMENTAL MANAGEMENT

August 20, 1991

Mr. Jimmy F. Garris
E. I. Du Pont De Nemours and Company
Post Office Box 800
Kinston, North Carolina 28502-0800

SUBJECT: Corrective Action Plan
Du Pont - Kentec Facility
Kinston, North Carolina

Dear Mr. Garris:

The Washington Regional Office, Groundwater Section, has reviewed the Corrective Action Plan, dated July 11, 1991, addressing on-site groundwater remediation at the Du Pont - Kentec facility, and find it to be acceptable. As we have previously discussed, the next step is the drafting of a Special Order by Consent (S.O.C.) Document, which will specify the necessary steps to be taken, and set dates for the completion of those steps. It is my understanding a draft S.O.C. has already been prepared by your company. Please be advised that additional permits may be necessary for the treatment and disposal of the contaminated groundwater. We look forward to meeting with you in the near future to discuss the details of the S.O.C.. In the interim, if you have any questions, please do not hesitate to call.

Sincerely,

Guy C. Pearce

Guy C. Pearce
Hydrogeological Technician

P.O. Box 1507, Washington, North Carolina 27889-1507 Telephone 919-946-6481 FAX: 919-975-3716

MOORE & VAN ALLEN
ATTORNEYS AT LAW
ONE HANNOVER SQUARE
SUITE 1700
POST OFFICE BOX 26507
RALEIGH, N.C. 27611
TELEPHONE (919) 828-4481

OTHER OFFICES:
CHARLOTTE, N.C.
DURHAM, N.C.
RESEARCH TRIANGLE PARK, N.C.
SOUTH PARK - CHARLOTTE, N.C.

TELEFAX (919) 828-4254

July 9, 1991

Mr. Willie Hardison
Goundwater Supervisor
DEHNR
Division of Environmental Management
1424 Carolina Avenue
Washington, NC 27889

Dear Willie:

I appreciate your assistance last Tuesday in my review of your records on Kentec, Incorporated.

Enclosed is our check in the amount of $30.70 covering the cost of copying.

Very truly yours,

MOORE & VAN ALLEN

Emily-Mary Brown

Emily-Mary Brown
Legal Assistant

EMB/sef

Enclosure

R:\DOCS\EMB\LETTER\10416_1

R-12003-K REV. 11-88

DU PONT
REG. U.S. PAT. & TM. OFF.
ESTABLISHED 1802

E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
KINSTON PLANT
KINSTON, NORTH CAROLINA 28502-0800

FIBERS DEPARTMENT

414

July 8, 1991

Jim Mulligan, Regional Supervisor
Division of Environmental Management
N. C. Dept. of Environmental, Health, & Natural Resources
P. O. Box 1507
Washington, North Carolina 27889

Dear Mr. Mulligan:

This letter responds to the comments received by Du Pont on May 9, 1991, from the Washington Regional Office addressing the Kentec Groundwater Assessment Report submitted in response to the Notice of Violation of February 4, 1991. The comments concluded that in order to meet the requirements of the Notice of Violation, it was necessary that Du Pont fully define the horizontal and vertical extent of the contaminant plume and report the information to the Regional Office on or before July 9, 1991.

Data which Du Pont was able to collect were limited to that evaluating the vertical extent of contamination within the Kentec plant boundaries. As has been previously discussed with you, owners of property adjoining the Kentec facility have denied Du Pont access for the purpose of installing wells or sampling. Neither the presence, nor the horizontal or vertical extent, of contamination can be determined or defined beyond the Kentec boundaries without such access. As you are also aware, these same property owners have filed lawsuits against Du Pont, which has, of course, complicated the issue of access.

The above-referenced limitations notwithstanding, Du Pont submits herewith a report prepared by our consultant, CH2M Hill, which includes data additional to that already submitted. Also, Du Pont is continuing with its onsite remedial design.

We trust that this satisfactorily addresses your comments. If you have any questions or further comments please feel free to contact me (919) 522-6263.

Sincerely,

Jerry Henderson
Groundwater Manager

DuPont - Kentec Meeting June 26, 1991

Attendees

Guy Pearce	DEM - Groundwater	(919) 946-6481
Willie Hardison	DEM - Groundwater	(919) 946-6481
HAROLD MILLS	DUPONT - GROUNDWATER	(919) 522-6382
John Rudolph	DuPont Proj. Eng.	(919) 522-6238
Doug Dronfield	CH2M HILL	(703) 471-1441
Jay Vandeven	"	"
Jerry Henderson	Dupont	(919) 522-6263

MOORE & VAN ALLEN
ATTORNEYS AT LAW
ONE HANNOVER SQUARE
SUITE 1700
POST OFFICE BOX 26507
RALEIGH, N.C. 27611
TELEPHONE (919) 828-4481

OTHER OFFICES:
CHARLOTTE, N.C.
DURHAM, N.C.
RESEARCH TRIANGLE PARK, N.C.
SOUTH PARK - CHARLOTTE, N.C.

TELEFAX (919) 828-4254

June 24, 1991

Mr. William A. Hardison
N.C. Department of Environment, Health and
Natural Resources
1424 Carolina Avenue
Washington, North Carolina 21889

Dear Mr. Hardison:

We would like to review records and files in your office with reference to Kentec, Inc. (formerly James Enterprises of Pitt County, N.C., Inc.) of Kinston, NC. Specifically, we would like to examine any records containing permits issued to the Kentec facility and reports of any incidents occurring at or near the facility. Regarding James Enterprises we would like to examine all records you have available on this corporation.

If agreeable with you, Ms. Emily-Mary Brown, a legal assistant with our firm, will plan to be in Washington on Tuesday, July 2, 1991, at approximately 9 a.m. to examine these records. Please call Ms. Brown if this date and/or time is inconvenient to arrange another mutually agreeable time.

Thank you for your assistance.

Very truly yours,

Craig A. Bromby

Craig A. Bromby

CAB/sef

cc: Mr. James Mulligan

State of North Carolina
Department of Environment, Health and Natural Resources
Northeastern Region
1424 Carolina Avenue, Washington, North Carolina 27889

James G. Martin, Governor
William W. Cobey, Jr., Secretary

Lorraine G. Shinn
Regional Manager

DIVISION OF ENVIRONMENTAL MANAGEMENT

June 27, 1991

Mr. Craig A. Bromby
Moore and Van Allen
Attorneys at Law
Post Office Box 26507
Raleigh, North Carolina 27611

Dear Mr. Bromby:

We have received your request to review the Kentec file (formerly the James Enterprises Site located near Kinston, North Carolina, Lenoir County). You indicated that a legal assistant with your firm will visit the Washington Office on July 2, 1991 (Tuesday), at approximately 9:00 AM to review the file.

This letter will serve to confirm the above date for Ms. Brown's visit. When she arrives, either Guy Pearce or I (Groundwater Section) will be glad to assist.

Sincerely,

Willie Hardison

Willie Hardison
Groundwater Supervisor

WAH:ekw

cc: Guy Pearce
Jim Mulligan

P.O. Box 1507, Washington, North Carolina 27889-1507 Telephone 919-946-6481 FAX: 919-975-3716

R-12003-K REV. 11-88

DU PONT
REG. US PAT. & TM. OFF.
ESTABLISHED 1802
E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
KINSTON PLANT
KINSTON, NORTH CAROLINA 28502-0800

FIBERS DEPARTMENT

June 11, 1991

Mr. Willie Hardison
N. C. Department of Environment, Health, & Natural Resources
P. O. Box 1507
Washington, North Carolina 27889-1507

Dear Mr. Hardison:

Subject: Groundwater Remediation Plan
Du Pont-Kentec Facility
Kinston NC

Thank you for your letter, dated June 6, 1991 indicating our conceptual Remedial Action Plan appears adequate. Confirming our telephone conversation last Thursday, we would like to meet with you, to review treatability study data and working drawings, at 1:30 p.m. Wednesday, June 26, 1991 in your office.

We are requesting this date for our next meeting because it will allow us time to visit a treatment system similar to what we are proposing. Our consultant has located a chemical oxidation unit in Michigan that is currently handling constituents very similar to what we will treat. We are negotiating a site visit which we believe will be very beneficial to our design process.

Unless otherwise advised, we will plan to see you June 26, 1991.

Sincerely,

Jerry D. Henderson
Groundwater Manager

Buy I suggest you and I attend.

WaRO

State of North Carolina
Department of Environment, Health and Natural Resources
Northeastern Region
1424 Carolina Avenue, Washington, North Carolina 27889

James G. Martin, Governor
William W. Cobey, Jr., Secretary

Lorraine G. Shinn
Regional Manager

DIVISION OF ENVIRONMENTAL MANAGEMENT

June 6, 1991

Mr. Jerry Henderson
E. I. DuPont De Nemours and Company
Post Office Box 800
Kinston, North Carolina 28502-0800

SUBJECT: Groundwater Remediation Plant
DuPont-Kentec Facility
Kinston, North Carolina

Dear Mr. Henderson:

The Washington Regional Office, Groundwater Section, has received the conceptual Remedial Action Plan, dated May 24, 1991, concerning on-site groundwater remediation at the DuPont-Kentec Facility. Based on our initial review, the plan appears adequate.

We look forward to meeting with you in the near future to review treatability study data and working drawings so that the Remedial Action Plan can be implemented as soon as possible.

If you have any questions or wish to discuss this matter, please contact me at (919) 946-6481.

Sincerely,

Guy C. Pearce

Guy C. Pearce
Hydrogeological Technician

GCP/awh

DU PONT
ESTABLISHED 1802
E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
KINSTON PLANT
P.O. BOX 800
KINSTON, NORTH CAROLINA 28502-0800
PHONE (919) 522-0111

FIBERS DEPARTMENT

May 24, 1991

Mr. Willie Hardison
N. C. Department of Environment, Health & Natural Resources
P. O. Box 1507
Washington, North Carolina 27889-1507

Ref: Groundwater Assessment
Du Pont-Kentec Facility
Kinston NC

Dear Mr. Hardison:

This submittal addresses the requirements of the May 8, 1991 letter from the North Carolina Department of Environment, Health and Natural Resources, Division of Environmental Management regarding the conceptual Remedial Action Plan for the onsite work at the Du Pont Kentec facility. A report summarizing the assessment and characterization of groundwater contamination at the site has been previously submitted (CH2M HILL, 1991). A more detailed Corrective Action Plan (CAP) for the site will be submitted in accordance with the February 4, 1991 Notice of Violation (NOV).

This conceptual plan presents the major elements of the onsite groundwater remediation. As work progresses on the detailed CAP, and as input from the State is received, modifications to this plan may be necessary. The overall objective of the remediation at the Du Pont-Kentec site is to meet the requirements specified in the NOV. The specific remediation objectives are to:

1. Prevent further migration of contaminants within the source area

2. Remove and treat the contaminants within the source area to the established cleanup levels

3. Achieve a cost-effective and timely cleanup

The source area is defined as the area bounded by the existing drainage ditch on the north, the fenceline to the south, and Route 1802 to the west. Within the source area, the corrective action plan addresses groundwater within the surficial aquifer. The elements of the remediation that are to be presented in this conceptual plan are: groundwater removal, treatment, discharge, and monitoring.

GROUNDWATER REMOVAL

Groundwater removal and contaminant source control will be achieved through the use of an interceptor trench. The trench will be located on three sides of the facility and keyed into the silt unit approximately 7 to 10 feet below ground surface. The location of the trench is presented in Figure 1. The performance and the effectiveness of this trench have been evaluated through groundwater modeling. Preliminary results from this modeling indicate that the trench will provide contaminant source control.

GROUNDWATER TREATMENT

Preliminary results from the groundwater modeling indicate that as much as 7,500 gallons per day of water will be removed from the trench. The constituents that require treatment, their estimated influent concentrations, and target cleanup levels (TCL) are as follows:

	Influent	TCL
• 1,4-Dioxane	2,500 ug/l	150 ug/l
• 1,1-Dichloroethane	100 ug/l	7 ug/l
• 1,1-Dichloroethene	20 ug/l	7 ug/l

The target cleanup levels were based on the requirements and guidances provided in the North Carolina Administrative Code Title 15A Subchapter 2L-Classifications and Water Quality Standards Applicable to the Groundwaters of North Carolina. Specifically, the 1,4-dioxane TCL of 150 ppb is consistent with Section .0202(b)(1) of the regulations that calls for the use of the analytical limit of detectability where the maximum allowable concentration of the contaminant is less than this limit of detectability. A major consideration in the evaluation of treatment options for the groundwater is the nearly infinite solubility of 1,4-dioxane and the need to reduce its influent concentration by 94 percent to meet the TCL. This precludes the use of the more conventional means of groundwater treatment, such as air stripping and carbon adsorption that would be viable if only the chlorinated solvents were present.

A technology that has been used to treat soluble organics, including 1,4-dioxane, is chemical oxidation. Chemical oxidation utilizes several oxidants, alone or in combination, to oxidize organics to carbon dioxide and water. Treatability studies are therefore being conducted to determine effectiveness and costs of this treatment technology. Preliminary results from the treatability studies indicate that the cleanup goals can be achieved using chemical oxidation. A schematic of the chemical oxidation system is shown in Figure 2.

GROUNDWATER DISCHARGE

Two methods are being considered in combination for the discharge of treated groundwater. The first and primary method would utilize one or more of the existing drainfields to recharge the surficial aquifer with the treated water. Recharging the aquifer will accelerate the cleanup by maintaining a higher head in the recharge area. This discharge system will be constructed and operated consistent with Administrative Code Section: 15A NCAC 2H .0200 - Waste Not Discharged to Surface Waters and a non-discharge permit will be submitted.

The second method is to reuse the treated water in the Kentec parts cleaning operation. Water is required in the industrial process to rinse pack parts that have been dipped in hot triethylene glycol. Approximately 2,000 gallons per day can be used in this manner.

MONITORING

Monitoring of the remediation includes two components: monitoring of the treatment system and groundwater monitoring. Monitoring of the treatment system will be conducted in two phases. During the startup of the system, treated groundwater will be collected, stored onsite, and analyzed prior to discharge. In this manner, Du Pont can be assured that the system is achieving the required cleanup goals. After sufficient data are gathered indicating that the system is operating effectively, samples will be collected on a routine basis to document system performance.

Monitoring of the groundwater will include 1) Measuring water levels to determine the actual capture zone of the trench system, 2) Collecting shallow aquifer groundwater samples and surface water samples from locations outside the trench system, and 3) Collecting shallow groundwater samples from locations bounded by the trench system.

We would like to implement the Remedial Action Plan as soon as possible. Treatability studies, using the chemical oxidation technology, are nearing completion and we feel a realistic implementation timetable is:

Action	Date
• Provide DEHNR with a corrective active plan including treatability study data and working drawings	6/17/91
• Finalize drawings, specifications, etc. for SOC	7/1/91
• Begin construction	9/1/91

If you have any questions, please contact me on (919)522-6263. Thank you for your help in this matter.

Sincerely,

Jerry D. Henderson
Groundwater Manager

File Copy

State of North Carolina
Department of Environment, Health and Natural Resources
Northeastern Region
1424 Carolina Avenue, Washington, North Carolina 27889

James G. Martin, Governor
William W. Cobey, Jr., Secretary

Lorraine G. Shinn
Regional Manager

DIVISION OF ENVIRONMENTAL MANAGEMENT

May 8 1991

Mr. Jerry D. Henderson
E.I. DuPont de Nemours and Company, Inc.
Post Office Box 800
Kinston, North Carolina 28501

Re: Groundwater Assessment
DuPont-Kentec Facility
Kinston, North Carolina

Dear Mr. Henderson:

On April 19, 1991, a meeting was held in the Washington Regional Office among members of your staff, and the Division of Environmental Management-Groundwater Section to discuss issues relating to the above referenced subject. Based on that meeting and the submitted report entitled, "Kentec Groundwater Assessment" dated April 1991, the Groundwater Section makes the following comments:

1. As stated in the report and discussed during the meeting, the extent and degree of groundwater contamination beyond the property boundaries of the facility to the south and east has not been fully defined. The assessment cannot be considered complete until the horizontal extent of the contaminant plume has been delineated.

2. Insufficient data has been presented to determine if the deeper, confined, Peedee aquifer has been impacted. The assessment cannot be considered complete until the vertical extent of the contaminant plume has been determined.

The Groundwater Section requests that DuPont-Kentec perform all work necessary to fully define the contaminant plume. This information should be submitted to our office within sixty (60) days of receipt of this letter.

3. As we indicated to you at the meeting, we do not object to DuPont-Kentec moving forward with on-site remediation. A conceptual Remedial Action Plan should be submitted to our office within fifteen (15) days of receipt of this letter. Please be advised that modifications to the proposed plan may become necessary as additional data concerning the horizontal and vertical components of the contaminant plume becomes available.

If you have any questions or wish to discuss this matter further. please contact me at any time. I can be reached at (919) 946-6481.

Sincerely,

Guy C. Pearce

Guy C. Pearce
Hydrogeological Technician

GCP:ekw

cc: Jim Mulligan
Willie Hardison

R-12003-K REV. 3-90

DU PONT

ESTABLISHED 1802

E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED

KINSTON PLANT
P.O. BOX 800
KINSTON, NORTH CAROLINA 28502-0800
PHONE (919) 522-0111

FIBERS DEPARTMENT

March 18, 1991

Mr. W. A. Hardison, Groundwater Supervisor
N. C. Dept. of Environment, Health & Natural Resources
P. O. Box 1507
Washington, North Carolina 27889

Dear Mr. Hardison:

Subject: Du Pont Kentec, Route 3, Box 118, Grifton NC

Thank you for your guidance last week. As I explained, determination of the horizontal extent of the groundwater contaminant plume cannot be completed within the 60 day limit of the Notice of Violation. Negotiating permission to install shallow off-site monitoring wells with an attorney, representing several of the neighbors, has caused the delay. We anticipate this permission will be granted in a meeting scheduled for March 21, 1991, and we will expeditiously install the wells.

We appreciate the offer of additional time to complete the site assessment. However, we would like to use the alternative we discussed of complying with the time limit and including the final definition of the contaminant plume in our corrective action plan (C.A.P.). We believe our understanding of this situation is sufficient to allow us to proceed with the design of our C.A.P. now.

Taking this route will enable us to move more rapidly in this remediation as we anticipate confirmation of our estimates very quickly. If our estimates are inaccurate, it should be fairly easy to adjust the C.A.P. design.

Again, thanks for your help and cooperation. We look forward to working closely together to complete this task.

Sincerely,

Jerry D. Henderson
Groundwater Project Manager

Gary F.Y.I.
please file Thanks

WaRO

POLLUTION INCIDENT/U.S.T. LEAK REPORTING FORM

1. Incident # _____
2. Tabulate only _____

Division of Environmental Management
GROUNDWATER SECTION

TYPE OF ACTION

A

1. Emergency Response
2. Compliance Investigation
3. Complaint Investigation
4. Routine Inventory
5. U.S.T. Leak
6. Other: _____

POTENTIAL HAZARDS: 1. Toxic Chemicals 2. Radioactivity 3. Air Emmissions 4. Explosives 5. Fire

INCIDENT DESCRIPTION

B

Incident Location/Name: Dupont- Kentec

Address: Route 3, Box 118 (SR 1802 near Grifton)

City/Town: Grifton | County: Lenoir | Region: Washington (Northeastern)

Briefly Describe Incident: Past treatment of Industrial Wastewater prior to disposal via drainfield, was inadequate, resulting in contraventions of 2L groundwater standards

Date Incident Occurred or Leak Detected: 1987

If L.U.S.T., How Leak Was Detected:
1. Tank Gauging
2. Vapor Monitoring
3. GW Monitoring
4. Contractor who tightness tested, removed tank, or installed leak detection system. N/A
5. Interstitial Monitoring
6. Tank Removal
7. Tightness Test
8. Other _____

PERSON REPORTING INCIDENT

C

Name: Mr. R. J. Hargitt / Mr. Jerry Henderson | Date: 1987 | Time:

Company/Agency: Dupont Fibers | Telephone: (919) 522-6263

REPORTED BY: 1. Tank owner/operator 2. Government agency 3. Private (3rd) party
4. Facility owner (Non-L.U.S.T.) 5. Other: _____

RECOMMENDED ACTION

D

(MULTIPLE CHOICES POSSIBLE)
1. Investigation complete
2. Continue investigation
3. Initiate/complete cleanup
4. Long-term remedial action
5. Drilling support
6. Issue NOV
7. Confirm leak
8. Monitoring plan

Comments: Facility is presently conducting "site Assessment", NOV will document site and lead to C.A.P. then S.O.C. for remediation

CLEANUP LEAD: 1. Responsible Party 2. State

Site Priority Ranking: 100

D.E.M. Regional Contact: Willie Hardison / Guy Pearce

Signature: Guy C. Pearce

Date: 2/5/91

GW-61 Revised 5/89

POLLUTION INCIDENT/U.S.T. LEAK REPORTING FORM

POLLUTANTS INVOLVED

E

MATERIALS INVOLVED	AMOUNT STORED OR TANK CAPACITY	AMOUNT LOST	AMOUNT RECOVERED
1,4-dioxane	N/A		
1,1, Dichloroethene	N/A		
1,1, Dichloroethane	N/A		

IMPACT ON SURFACE WATERS

F

WATERS AFFECTED 1. Yes (2. No) 3. Potentially			Distance to Stream(ft)
Fish Kill 1. Yes (2. No)	Name of Stream		Stream Class

IMPACT ON DRINKING WATER SUPPLIES

G

WELLS AFFECTED 1. Yes 2. No (3. Potentially)		No. of Wells Affected	No. of Wells Potentially Affected
Population Served By Affected Wells	Estimated Population Served By Potentially Affected Wells	Aquifer(s) Being Used 1. Water Table 2. Confined 3. Bedrock	

POTENTIAL SOURCE OF POLLUTION

H

PRIMARY SOURCE OF POTENTIAL POLLUTION (Select one)

1. Intentional dump
2. Pit, pond, lagoon
3. Leak-underground
4. Spray irrigation
5. Land application
6. Animal feedlot
7. Source unknown
8. (Septic tank - drainfield)
9. Sewer line
10. Stockpile
11. Landfill
12. Spill-surface
13. Well
14. Dredge spoil
15. Nonpoint source

PRIMARY POLLUTANT TYPE (Select one)

1. Pesticide/herbicide
2. Radioactive waste
3. Gasoline/diesel
4. Heating oil
5. Other petroleum prod.
6. Sewage/septage
7. Fertilizers
8. Sludge
9. Solid waste leachate
10. Metals
11. Other inorganics
12. (Other organics)

LOCATION

1. (Facility)
2. Railroad
3. Waterway
4. Pipeline
5. Dumpsite
6. Highway
7. Residence
8. Other

SETTING

1. Residential
2. Industrial
3. Urban
4. (Rural)

If other sources, list corresponding No's.

If multiple pollutant types, list corresponding No's.

If PIRF previously submitted for Nonprimary Sources, list Incident No's.

Confirmed Violation of:

1. 15 NCAC 2L ✓ Yes _____ No
2. Article 21A Part I _____ Yes _____ No
3. Article 21A Part II _____ Yes _____ No
4. Federal/State U.S.T. rules _____ Yes _____ No

(2)

POLLUTION INCIDENT/U.S.T. LEAK REPORTING FORM

POTENTIAL SOURCE OWNER-OPERATOR

I

Potential Source Owner-Operator: Mr. Jerry Henderson / Dupont Fibers			Telephone: (919) 522-6263
Company: Dupont-Kentec		Street Address: Rt. 3, Box 118 (SR 1802)	
City: Grifton	County: Lenoir	State: North Carolina	Zip Code: 28530

U.S.T. REGISTERED: 1. YES 2. NO — N/A

FACILITY ID#: N/A

FEDERAL U.S.T. DESIGNATION: N/A — 1. Regulated 2. Non-Regulated

STATE U.S.T. DESIGNATION: N/A — 1. Commercial 2. Non-Commercial

SOURCE/U.S.T. IN USE: (1) N/A 2. YES 3. NO

SOURCE PERMITTED: 1. Yes (2) No

PERMIT NUMBER: N/A

SOURCE ON ERRIS LIST: 1. Yes (2) No

ERRIS NUMBER: N/A

PERMIT TYPE: (0) N/A; 1. Non-discharge; 2. Oil terminal; 3. Landfill; 4. Mining; 5. NPDES; 6. RCRA

OWNERSHIP: 0. N/A; 1. Municipal; 2. Military; 3. Unknown; (4) Private; 5. Federal; 6. County; 7. State

OPERATION TYPE: 0. N/A; 1. Public Service; 2. Agricultrural; 3. Residential; 4. Educational/Religious; (5) Industrial; 6. Commercial; 7. Mining

U.S.T. LEAK PREVENTION MEASURES
Was tank retrofitted with overfill protection?
1. Yes
2. No
When and by whom? N/A
Was tank retrofitted with interior lining?
1. Yes
2. No
When and by whom? N/A
Was tank retrofitted with cathodic protection?
1. Yes
2. No
When and by whom? N/A

REASON FOR INCIDENT: 1. Transportation; (2) Mechanical failure; (3) Facility; 4. Inventory only; 5. Human error; 6. Vandalism; 7. Unknown

ACTIONS TAKEN

J

Investigation, Containment, Cleanup, etc.

The Groundwater Section met with Dupont-Kentec officials on 1/25/91 to discuss this site. The facility is currently completing a Site Assessment. We issued a N.O.V. to Dupont-Kentec on 2/4/91. The company has accepted responsibility and desires to initiate clean-up and remediation as quickly as possible.

Circle Appropriate Responses
Lab Samples Taken By: 1. D.E.M. 2. D.H.S. (3) Responsible Party 4. None

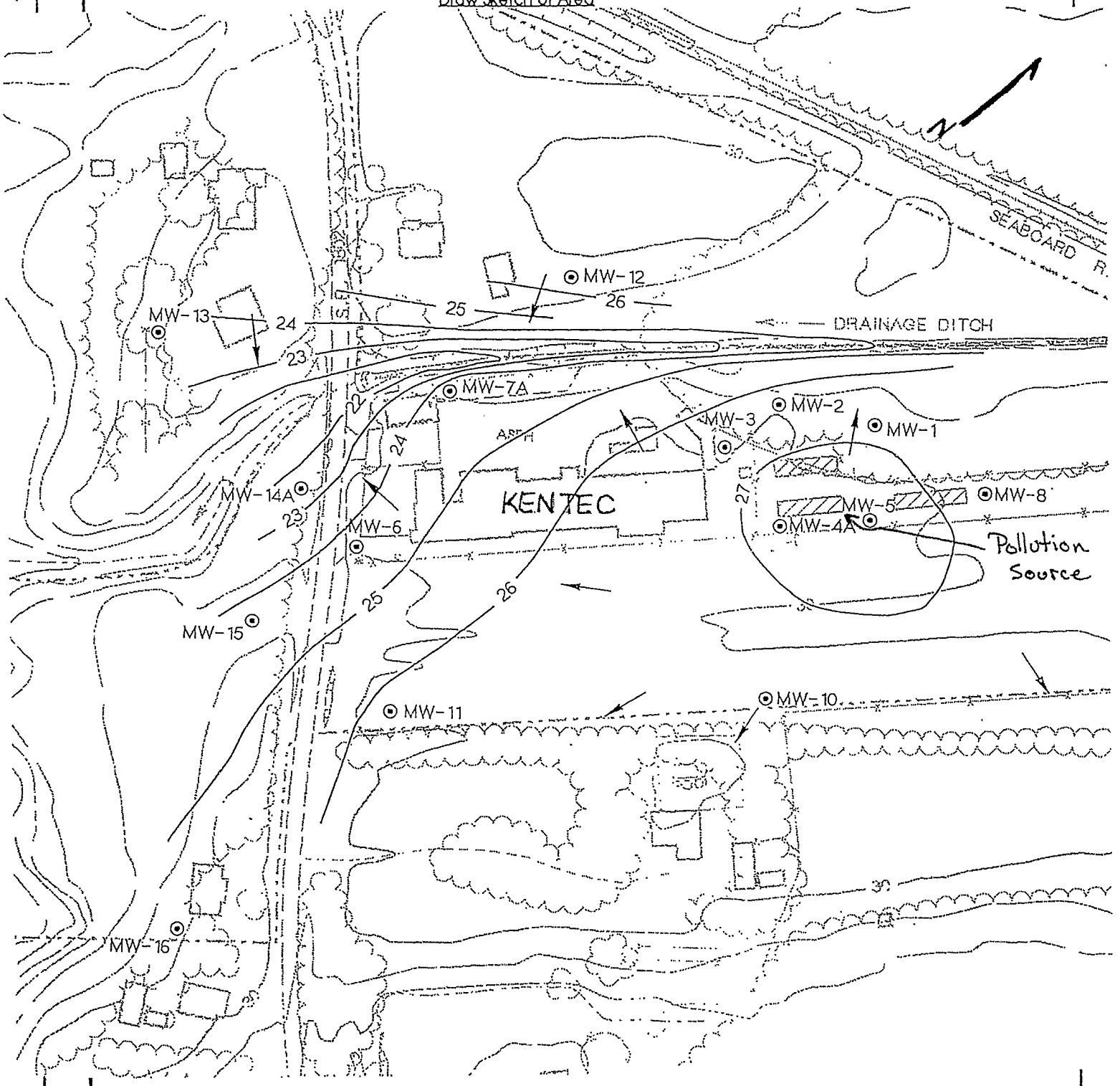
Samples Taken Include: (1) Groundwater 2. Soil (3) Surface Water

POLLUTION INCIDENT/U.S.T. LEAK REPORTING

LOCATION OF INCIDENT

7 1/2 Min. Quad Name	Lat. : Deg : Min : Sec : 35° 20' 33"
Grifton	Long. : Deg : Min : Sec : 77° 27' 57"
Five Min. Quad Number	
P-25-W	

Draw Sketch of Area



Sketch Should Identify The Following:

1. Pollutant Source(s)
2. Impacted and Threatened Water Supplies
3. Direction of Overland Flow (← approximate)
4. Significant Recharge and Discharge Features
5. Relative Physical Structures (roads, buildings, etc.)
6. North Arrow
7. Scale 1" = 150'

Incident Name Dupont- Kentec
Region/County Washington Region / Lenoir Co.
Groundwater Incident File #
Ranking Performed by G. Pearce Date 2/5/91

NORTH CAROLINA

GROUNDWATER CONTAMINATION INCIDENT MANAGEMENT
SITE PRIORITY RANKING SYSTEM

	Points Awarded
I. IMMINENT HAZARD ASSESSMENT	
A. Explosion - free product in confined areas or vapor phase product detected at or above 20% of the lower explosive limit; award 50 points total	0
B. Fire - free product subject to ignition in exposed areas such as surface water impoundments, streams, excavations, etc.; award 50 points total	0
II. EXPOSURE ASSESSMENT	
A. Contaminated Drinking Water Supplies	
1. Private, domestic water supply well containing substances in concentrations exceeding Class GA underground water quality standards; award 10 points per well	0
2. Public or institutional water supply well containing substances in concentrations exceeding Class GA underground water quality standards; award 30 points per well	0
3. Exceedences of Class WS-1 surface water quality standards as a result of groundwater discharge; award 20 points per surface water body impacted	0
4. If a water supply well identified in items II.A.1 and II.A.2 cannot be replaced by an existing public water supply source requiring hook-up only; award additional 10 points per irreplaceable well	0

B. Threat To Uncontaminated Drinking Water Supplies

1. Private, domestic water supply well located within 1500 feet downgradient of contaminant source; award 10 points per well — 10

2. Public or institutional water supply well located within 1/2 mile downgradient of contaminant source; award 15 points per well — 0

3. Raw surface water intake for public water supply located within 1/2 mile downgradient of contaminant source; award 5 points per water supply system — 0

4. If any well identified in items II.B.1 and II.B.2 is located within 250 feet of contaminant source; award additional 20 points total — 20

C. Vapor Phase Exposure

1. Product vapors detected in inhabitable building(s); award 30 points total — 0

2. Product vapors detected in other confined areas (uninhabitable buildings, sewer lines, utility vaults, etc.); award 5 points total — 0

III. CONTAMINANT HAZARD ASSESSMENT (chemical groups are categorized based on toxicity, mobility and persistence in the environment). Evaluate the most hazardous substances detected and select only one of the following:

A. Award 30 points total if contaminants detected are identified with any of the following groups: — 30

1. Aromatic (Benzene) Acids
2. Aromatic Hydrocarbons (Benzene Derivatives)
3. Sulfonated Hydrocarbons
4. Halogenated Hydrocarbons
5. Alkaloids
6. Anilines
7. Phenols
8. Aldehydes
9. Ketones
10. Organic Sulfur Compounds (Sulfides, Mercaptans)
11. Organometallic Compounds

12. Cyanides
13. Esters
14. Metal Salts, Including Heavy Metals

B. Award 20 points total if contaminants detected are identified with any of the following groups: 0

1. Aliphatic (Fatty) Acids
2. Alcohols
3. Aliphatic Hydrocarbons (Petroleum Derivative)
4. Pyridines
5. Thiocyanides
6. Mineral and Metal Acids
7. Mineral and Metal Bases
8. Oxides
9. Sulfides

C. Award 10 points total if contaminants detected are identified with any of the following groups: 0

1. Aliphatic Amines and Their Salts
2. Sugars and Cellulose
3. Carbon and Graphite

IV. SOURCE ASSESSMENT

A. Free product thickness of $\geq$ 1/4 inch detected on water table in observation or monitoring well; award 20 points total 0

B. Contaminated Soil (select only one answer)

1. Soil saturated with product (saturation determined by release of free liquid upon compaction of a soil sample by hand pressure); award 10 points total 0

2. Soil exhibiting organic vapor content above 100 ppm as measured by organic vapor or volatile organic detection equipment; award 5 points total 0

C. Uncontrolled or Unabated Primary Source (including dumpsites, stockpiles, lagoons, land applications, septic tanks, landfills, underground and above ground storage tanks, etc.)

1. Suspected or confirmed source remains in active use and continues to receive raw product, wastewater or solid waste; award 20 points per source — 0

2. Active use of suspected or confirmed source has been discontinued or source was caused by a one-time release of product or waste, however, source continues to release product or contaminants into the environment; award 10 points per source — 0

V. ENVIRONMENTAL VULNERABILITY ASSESSMENT

A. Vertical Contaminant Migration - Literature or well logs indicate that no confining layer is present above bedrock or above twenty feet below land surface; award 10 points total — 0

B. Horizontal Contaminant Migration - Data or observations indicate that no discharge points or aquifer discontinuities exist between the source and the nearest downgradient drinking water supply; award 10 points total — 10

C. Hydraulic Gradient Is Determined By (select only one answer):

1. Calculations based on groundwater level measurements; award 10 points total — 10

2. Observation of significant recharge/discharge features in the vicinity of contaminant source and local topographic features; award 5 points total — 0

3. Observation of local topographic features only; award 0 points — 0

D. Existing Groundwater Quality

1. Analytical test(s) performed on groundwater sample(s) obtained from site confirm presence of substances in concentrations exceeding Class GA underground water quality standards; award 10 points total — 10

2. Source(s) identified in Section IV constitute the only known source(s) of contamination resulting in exposure or potential exposure identified in Section II; award 10 points total — 10

TOTAL POINTS AWARDED — 100

State of North Carolina
Department of Environment, Health and Natural Resources
Northeastern Region
1424 Carolina Avenue, Washington, North Carolina 27889

James G. Martin, Governor
William W. Cobey, Jr., Secretary

Lorraine G. Shinn
Regional Manager

To Whom It May Concern:

Under the Freedom of Information Act, I hereby request access to the Water and groundwater file (GW Incident # 6334 Kentec, Lenoir Co.). I make this request on behalf of and as an agent of Environmental and Regulatory Consultants, Inc. Thank you for your cooperation.

Signed: Susan Broad Date: 2/15/91

4647 Pine Trace Drive
(Address)
Raleigh, N.C. 27613
(Environmental and Regulatory Consultants, Inc.)

4/6 copies @ .10 $ 41.60

pd 2-16-91
Caroline MacNeill

POLLUTION INCIDENT/U.S.T. LEAK REPORTING FORM

(1.) Incident # 6334

2. Tabulate only _____

Division of Environmental Management
GROUNDWATER SECTION

TYPE OF ACTION

A

1. Emergency Response
(2.) Compliance Investigation
3. Complaint Investigation
4. Routine Inventory
5. U.S.T. Leak
(6.) Other: _____

POTENTIAL HAZARDS: (1.) Toxic Chemicals 2. Radioactivity 3. Air Emmissions 4. Explosives 5. Fire

INCIDENT DESCRIPTION

B

Incident Location/Name: Dupont- Kentec

Address: Route 3, Box 118 (SR 1802 near Grifton)

City/Town: Grifton | County: Lenoir | Region: Washington (Northeastern)

Briefly Describe Incident: Past treatment of Industrial Wastewater prior to disposal via drainfield, was inadequate, resulting in contraventions of 2L groundwater standards

RECEIVED
FEB 6 1991
POLLUTION CONTROL BRANCH

Date Incident Occurred or Leak Detected: 1987

If L.U.S.T., How Leak Was Detected:
1. Tank Gauging
2. Vapor Monitoring
3. GW Monitoring
4. Contractor who tightness tested, removed tank, or installed leak detection system. N/A
5. Interstitial Monitoring
6. Tank Removal
7. Tightness Test
8. Other _____

PERSON REPORTING INCIDENT

C

Name: Mr. R. J. Hargitt / Mr. Jerry Henderson | Date: 1987 | Time:

Company/Agency: Dupont Fibers | Telephone: (919) 522-6263

REPORTED BY: 1. Tank owner/operator 2. Government agency 3. Private (3rd) party
(4.) Facility owner (Non-L.U.S.T.) 5. Other: _____

RECOMMENDED ACTION

D

(MULTIPLE CHOICES POSSIBLE)
1. Investigation complete
2. Continue investigation
3. Initiate/complete cleanup
4. Long-term remedial action
5. Drilling support
(6.) Issue NOV
7. Confirm leak
8. Monitoring plan

Comments: Facility is presently conducting "site Assessment", NOV will document site and lead to C.A.P. then S.O.C. for remediation

CLEANUP LEAD: (1.) Responsible Party 2. State

Site Priority Ranking: 80/D ~~100~~

D.E.M. Regional Contact: Willie Hardison / Guy Pearce

Signature: Guy C. Pearce

Date: 2/5/91

GW-61 Revised 5/89

Incident Name: DUPONT KEN TEC Region/County: WARD LENOIR

Groundwater Incident File # 6334 Ranking Performed by: W.R. CREW

Date: 8/11/94 80 E V

NORTH CAROLINA
GROUNDWATER CONTAMINATION INCIDENT MANAGEMENT
SITE PRIORITY RANKING SYSTEM

(To be completed by Regional Office)

		Points Awarded
I.	**IMMINENT HAZARD ASSESSMENT**	
A.	Explosion - free product in confined areas or vapor phase product detected at or above 20% of the lower explosive limit or at health concern levels; award 50 points total	0
B.	Fire - free product subject to ignition in exposed areas such as surface water impoundments, streams, excavations, etc.; award 50 points total	0
II.	**EXPOSURE ASSESSMENT**	
A.	Contaminated Drinking Water Supplies	
1.	Private, domestic water supply well containing substances in concentrations exceeding 15A NCAC 2L groundwater quality standards; award 10 points per well	
2.	Public or institutional water supply well containing substances in concentrations exceeding 15A NCAC 2L groundwater quality standards; award 20 points per well	0
3.	Exceedances of Class WS-1 surface water quality standards as a result of groundwater discharge; award 20 points per surface water body impacted	0
4.	If a water supply well identified in items II. A. 1 and II. A. 2 cannot be replaced by an existing public water supply source requiring hook-up only; award additional 10 points per irreplaceable well	0
B.	Threat to Uncontaminated Drinking Water Supplies	
1.	Private, domestic water supply well located within 1500 feet down gradient of contaminant source; award 10 points per well	30
2.	Public or institutional water supply well located within 1500 feet downgradient of contaminant source; award 15 points per well	0
3.	Raw surface water intake for public water supply located within 1/2 mile downgradient of contaminant source; award 5 points per water supply system	0
4.	If any well identified in items II. B. 1 and II. B. 2 or an intake in item II. B. 3. are located within 250 feet of contaminant source; award additional 20 points total (not per well or intake)	20
C.	Vapor Phase Exposure	
1.	Product vapors detected in inhabitable building(s) below 20% of the lower explosive limit or health concern levels; award 30 points total	0

Points Awarded

2. Product vapors detected in other confined areas (uninhabitable buildings, sewer lines, utility vaults, etc.) below 20% of the lower explosive limit; award 10 points total — 0

III. SOURCE ASSESSMENT

A. Uncontrolled or Unabated Primary Source (including dumpsites, stockpiles, lagoons, land applications, septic tanks, landfills, underground and above ground storage tanks, etc.)

1. Suspected or confirmed source remains in active use and continues to receive raw product, wastewater or solid waste; award 30 points per source — 0

2. Active use of suspected or confirmed source has been discontinued or source was caused by a one-time release of product or waste, however, source continues to release product or contaminants into the environment; award 10 points per source — 10

IV. ENVIRONMENTAL VULNERABILITY ASSESSMENT

A. Vertical Contaminant Migration - Literature or well logs indicate that no confining layer is present above bedrock or within twenty feet of land surface; award 10 points total — 0

B. Horizontal Contaminant Migration - Data or observations indicate that no discharge points or aquifer discontinuities exist between the source and the nearest downgradient drinking water supply; award 10 points total — 0

C. Existing Groundwater Quality - The worst case monitor or supply well contains contaminant levels:

1. At less than 10 times the 2L groundwater standards; award 5 points — 0

2. Between 10 and 100 times the 2L groundwater standards; award 20 points — 20

3. Greater than 100 times the 2L groundwater standards; award 40 points — 0

V. REGIONAL OFFICE RESPONSE (LETTER RANK)

Priority A - (Site meets any one of the criteria)

1. Water supply well(s) contaminated and no alternate water supplies available.

2. Vapors present in confined areas at explosive or health concern levels.

3. Treated surface water supply in violation of the safe drinking standards.

Priority B - (Any One)

1. Water supply well(s) contaminated, but alternate water supplies available.

2. Water supply well(s) within 1500 feet of site, but not contaminated and no alternate water supplies available.

3. Vapors present in confined areas but not at explosive or health concern levels.

Priority C - (Both)

1. No water supply well(s) contaminted.

2. Water supply well(s) greater than 1500 feet from site, no alternate water supply available.

Priority D - (Both)

1. No water supply well(s) contaminted.

2. Water supply well(s) within 1500 feet of site but alternate water supplies available.

Priority E - (Both)

1. No water supply well(s) contaminated or within 1500 feet of site.

2. Area served by alternate water supply.

TOTAL POINTS AWARDED 80 / D
#/Letter

POLLUTION INCIDENT/U.S.T. LEAK REPORTING FORM

POLLUTANTS INVOLVED

	MATERIALS INVOLVED	AMOUNT STORED OR TANK CAPACITY	AMOUNT LOST	AMOUNT RECOVERED
E	1,4-dioxane	N/A		
	1,1, Dichloroethene	N/A		
	1,1, Dichloroethane	N/A		

IMPACT ON SURFACE WATERS

F	WATERS AFFECTED 1. Yes (2. No) 3. Potentially		Distance to Stream(ft)
	Fish Kill 1. Yes (2. No)	Name of Stream	Stream Class

IMPACT ON DRINKING WATER SUPPLIES

G	WELLS AFFECTED 1. Yes 2. No (3. Potentially)		No. of Wells Affected	No. of Wells Potentially Affected
	Population Served By Affected Wells	Estimated Population Served By Potentially Affected Wells	Aquifer(s) Being Used 1. Water Table 2. Confined 3. Bedrock	

POTENTIAL SOURCE OF POLLUTION

H

PRIMARY SOURCE OF POTENTIAL POLLUTION (Select one)

1. Intentional dump
2. Pit, pond, lagoon
3. Leak-underground
4. Spray irrigation
5. Land application
6. Animal feedlot
7. Source unknown
8. (Septic tank - drainfield)
9. Sewer line
10. Stockpile
11. Landfill
12. Spill-surface
13. Well
14. Dredge spoil
15. Nonpoint source

PRIMARY POLLUTANT TYPE (Select one)

1. Pesticide/herbicide
2. Radioactive waste
3. Gasoline/diesel
4. Heating oil
5. Other petroleum prod.
6. Sewage/septage
7. Fertilizers
8. Sludge
9. Solid waste leachate
10. Metals
11. Other inorganics
12. (Other organics)

LOCATION

1. (Facility)
2. Railroad
3. Waterway
4. Pipeline
5. Dumpsite
6. Highway
7. Residence
8. Other

SETTING

1. Residential
2. Industrial
3. Urban
4. (Rural)

If other sources, list corresponding No's.

If multiple pollutant types, list corresponding No's.

If PIRF previously submitted for Nonprimary Sources, list incident No's.

Confirmed Violation of:

1. 15 NCAC 2L ✓ Yes ____ No
2. Article 21A Part I ____ Yes ____ No
3. Article 21A Part II ____ Yes ____ No
4. Federal/State U.S.T. rules ____ Yes ____ No

POLLUTION INCIDENT/U.S.T. LEAK REPORTING FORM

POTENTIAL SOURCE OWNER-OPERATOR

I

Potential Source Owner-Operator: Mr. Jerry Henderson / Dupont Fibers			Telephone: (919) 522-6263
Company: Dupont- Kentec		Street Address: Rt. 3, Box 118 (SR 1802)	
City: Grifton	County: Lenoir	State: North Carolina	Zip Code: 28530

U.S.T. REGISTERED (1. YES, 2. NO): N/A

FACILITY ID#: N/A

FEDERAL U.S.T. DESIGNATION (1. Regulated, 2. Non-Regulated): N/A

STATE U.S.T. DESIGNATION (1. Commercial, 2. Non-Commercial): N/A

SOURCE/U.S.T. IN USE (1. N/A, 2. YES, 3. NO): (1) N/A

SOURCE PERMITTED (1. Yes, 2. No): (2) No

PERMIT NUMBER: N/A

SOURCE ON ERRIS LIST (1. Yes, 2. No): (2) No

ERRIS NUMBER: N/A

PERMIT TYPE: (0) N/A; 1. Non-discharge; 2. Oil terminal; 3. Landfill; 4. Mining; 5. NPDES; 6. RCRA

OWNERSHIP: 0. N/A; 1. Municipal; 2. Military; 3. Unknown; (4) Private; 5. Federal; 6. County; 7. State

OPERATION TYPE: 0. N/A; 1. Public Service; 2. Agricultrural; 3. Residential; 4. Educational/Religious; (5) Industrial; 6. Commercial; 7. Mining

U.S.T. LEAK PREVENTION MEASURES
Was tank retrofitted with overfill protection? (1. Yes, 2. No)
When and by whom? N/A
Was tank retrofitted with interior lining? (1. Yes, 2. No)
When and by whom? N/A
Was tank retrofitted with cathodic protection? (1. Yes, 2. No)
When and by whom? N/A

REASON FOR INCIDENT: 1. Transportation; (2) Mechanical failure; (3) Facility; 4. Inventory only; 5. Human error; 6. Vandalism; 7. Unknown

ACTIONS TAKEN

J

Investigation, Containment, Cleanup, etc.

The Groundwater Section met with Dupont-Kentec officials on 1/25/91 to discuss this site. The facility is currently completing a Site Assessment. We issued a N.O.V. to Dupont-Kentec on 2/4/91. The company has accepted responsibility and desires to initiate clean-up and remediation as quickly as possible.

Circle Appropriate Responses
Lab Samples Taken By: 1. D.E.M. 2. D.H.S. (3) Responsible Party 4. None

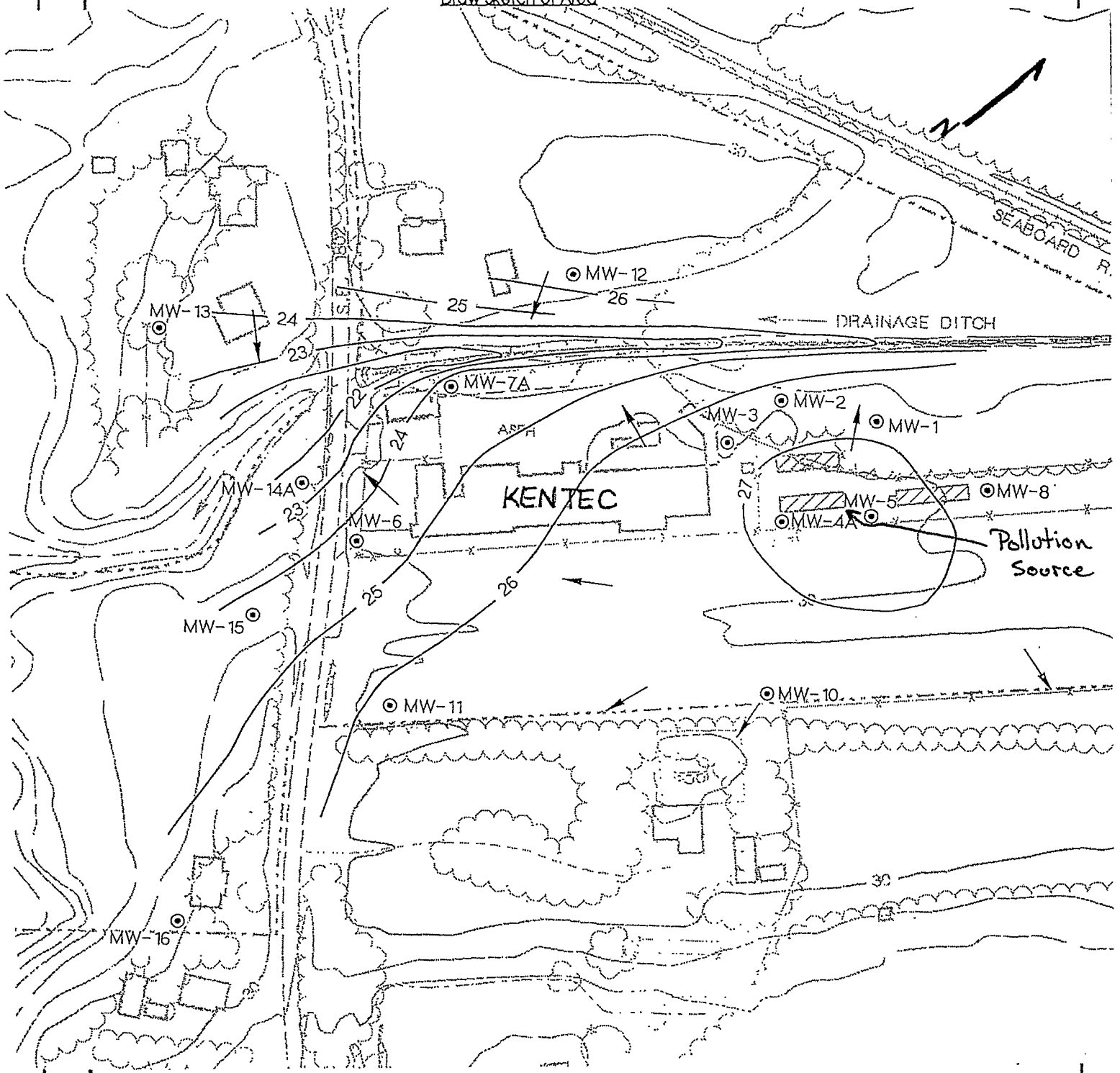
Samples Taken Include: (1) Groundwater 2. Soil (3) Surface Water

POLLUTION INCIDENT/U.S.T. LEAK REPORTING

LOCATION OF INCIDENT

7 1/2 Min. Quad Name	Lat. : Deg : Min : Sec :
Grifton	35° 20' 33"
Five Min. Quad Number	Long. : Deg : Min : Sec :
P-25-W	77° 27' 57"

Draw Sketch of Area



Sketch Should Identify The Following:

1. Pollutant Source(s)
2. Impacted and Threatened Water Supplies
3. Direction of Overland Flow (← Approximate)
4. Significant Recharge and Discharge Features
5. Relative Physical Structures (roads, buildings, etc.)
6. North Arrow
7. Scale 1" = 150'

P 426 126 725

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse) BP/BW

Sent to Jerry Henderson	
Street and No. P. O. Box 800	
P.O., State and ZIP Code Kinston, N.C. 28502-0800	
Postage	$ .75
Certified Fee	1.00
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	1.00
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$ 2.75
Postmark or Date	

WASHINGTON DC FEB 8 1991 USPS

PS Form 3800, June 1985 *U.S.G.P.O. 1989-234-555

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.
1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)* 2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:

Mr. Jerry Henderson
DuPont Fibers
Post Office Box 800
Kinston, N.C. 28502-0800

4. Article Number
P 426 126 725

Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Addressee
X Marlene Kemp

6. Signature — Agent
X

7. Date of Delivery
2-8-91

8. Addressee's Address *(ONLY if requested and fee paid)*
DELIVERED
WASHINGTON OFFICE
FEB 11 1991
D. E. M.

PS Form **3811**, Apr. 1989 *U.S.G.P.O. 1989-238-815 **DOMESTIC RETURN RECEIPT**

UNITED STATES POSTAL SERVICE

OFFICIAL BUSINESS

SENDER INSTRUCTIONS

Print your name, address and ZIP Code in the space below.

- Complete items 1, 2, 3, and 4 on the reverse.
- Attach to front of article if space permits, otherwise affix to back of article.
- Endorse article "Return Receipt Requested" adjacent to number.

U.S.MAIL

PENALTY FOR PRIVATE USE, $300

RETURN TO

Print Sender's name, address, and ZIP Code in the space below.

Mr. Jim Mulligan

EHNR, P. O. Box 1507

Washington, North Carolina 27889

BP/Bw

file

State of North Carolina
Department of Environment, Health and Natural Resources

Northeastern Region
1424 Carolina Avenue, Washington, North Carolina 27889

James G. Martin, Governor
William W. Cobey, Jr., Secretary

Lorraine G. Shinn
Regional Manager

DIVISION OF ENVIRONMENTAL MANAGEMENT

February 4. 1991

Mr. Jerry Henderson
DuPont Fibers
Post Office Box 800
Kinston. North Carolina 28502-0800

SUBJECT: DuPont-Kentec
Route 3. Box 118
Grifton, North Carolina

Dear Mr. Henderson:

This letter is written as a follow-up to our meeting held at the DuPont-Kentec facility on January 25, 1991. The Division of Environmental Management appreciates your company's forthright manner in dealing with this problem and will work with Dupont-Kentec to arrive at a solution.

As we discussed, Dr. Ken Rudo is with the State Environmental Epidemiology Section, and may be able to assist you in evaluating the health risks associated with the contaminants involved at this site. Dr. Rudo can be reached at (919) 733-3410.

The attached Notice of Violation (N.O.V.) will serve as documentation of groundwater contamination at the site and provide a means of establishing a timetable for remediation. As we indicated during the meeting. the N.O.V. requires a site assessment to be submitted within sixty (60) days of receipt. From our discussions and your previously submitted report titled. "Dupont-Kentec Groundwater Investigations", it appears that much of the site assessment has already been accomplished.

Upon notification from our office that the site assessment has been approved, Dupont-Kentec will have fifteen (15) days to submit a Corrective Action Plan (C.A.P.) From the C.A.P., a Special Order by Consent S.O.C.) will be developed which specifies the steps to be taken and time frames for completing these steps. The attached draft S.O.C. should provide a general outline of what will be required.

If, after reviewing these documents, you have any questions or wish to further discuss this matter. please contact me at (919) 946-6481.

Sincerely,

Guy C. Pearce

Guy C. Pearce
Hydrogeological Technician

GP:ekw

Attachments

State of North Carolina
Department of Environment, Health and Natural Resources
Northeastern Region
1424 Carolina Avenue, Washington, North Carolina 27889

James G. Martin, Governor
William W. Cobey, Jr., Secretary

Lorraine G. Shinn
Regional Manager

DIVISION OF ENVIRONMENTAL MANAGEMENT

February 4, 1991

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Jerry Henderson
DuPont Fibers
Post Office Box 800
Kinston, North Carolina 28502-0800

Re: Notice of Violation
DuPont-Kentec
Kinston, North Carolina

Dear Mr. Henderson:

North Carolina General Statutes, Chapter 143, authorizes and directs the Environmental Management Commission of the Department of Environment, Health and Natural Resources to protect and preserve the water and air resources of the State. The Division of Environmental Management has the delegated authority to enforce adopted pollution control rules and regulations.

Based upon a report submitted by DuPont-Kentec on November 21, 1990, the Division has reason to believe that the DuPont-Kentec facility, located on SR 1802, approximately 0.5 mile east of the intersection with NC Hwy 11, near Grifton, North Carolina, is responsible for activities resulting in noncompliance with North Carolina law (refer to DuPont-Kentec report entitled Groundwater Investigations).

The specific violations are as follows:

North Carolina Administrative Code Title 15A Subchapter 2L Classifications and Water Quality Standards Applicable to the Groundwaters of North Carolina.

1. NCAC 2L .0103 (d)

   No person shall conduct or cause to be conducted any activity which causes the concentration of any substances to exceed that specified in Rule .0202 of this Subchapter, except as authorized by the rules of this Subchapter.

2. NCAC 2L .0202 (c)

   Substances which are not naturally occurring and for which no standard is specified shall not be permitted in detectable concentrations in Class GA or Class GSA groundwaters.

As the responsible party, you are being held responsible for this violation. Specifically, to correct the above violations, you must perform the following:

1. The unauthorized discharge and/or source of groundwater contamination must be identified and eliminated.

2. Conduct a Site Assessment to determine the horizontal and vertical extents of groundwater and/or contamination. The assessment should address Sections 1-7 of the attachment entitled, "Outline for Evaluation of Site Characterization Data and Remedial Action Plans for Groundwater Restoration." Be advised that a permit to construct monitoring wells is required from the Department (application attached).

   Your assessment report must be submitted for review within sixty (60) days of receipt of this letter.

3. Once the assessment is complete and groundwater contamination is quantified, you are required to submit to the Department for review and approval, a Corrective Action Plan (C.A.P.). The C.A.P. must address Sections 8-10 of the attachment entitled, "Outline for Evaluation of Site Characterization Data and Remedial Action Plans for Groundwater Restoration." The plan should address the recovery, treatment, and disposal of the contaminated groundwater. The plan should also indicate an approximate timetable for each phase of the job.

Corrective Action Plans submitted to our office for review must be accompanied by all documentation, maps, letters of agreement (for example, disposal site agreement), etc. All analyses, methodologies, monitoring plans, and procedures to be conducted during remediation must be addressed in the C.A.P.

Your Corrective Action Plan must be submitted for review within fifteen (15) days of the Department's approval of your Groundwater Assessment report.

Failure to respond within the time specified and to voluntarily achieve compliance may result in issuance of a civil penalty assessment under authority of G.S. 143-215.91 (or 215.6) of not more than $5,000.00 ($10,000.00); the issuance of a special order against you under the authority of G.S. 143-215.2; or a request to the Attorney General to institute an action for injunctive relief.

Your response and/or questions should be directed to me or to Willie Hardison, Groundwater Supervisor, at the Washington Regional Office, at (919) 946-6481.

Sincerely,

Jim Mulligan
Regional Supervisor

GP:ekw

Enclosures

cc: Office of General Counsel
Pollution Control Branch
Lenoir County Health Department
WaRO File

State of North Carolina
Department of Environment, Health and Natural Resources
Northeastern Region
1424 Carolina Avenue, Washington, North Carolina 27889

James G. Martin, Governor
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Lorraine G. Shinn
Regional Manager

DIVISION OF ENVIRONMENTAL MANAGEMENT

February 4, 1991

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RETURN RECEIPT REQUESTED

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DuPont Fibers
Post Office Box 800
Kinston, North Carolina 28502-0800

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Your response and/or questions should be directed to me or to Willie Hardison, Groundwater Supervisor, at the Washington Regional Office, at (919) 946-6481.

Sincerely,

Jim Mulligan

Jim Mulligan
Regional Supervisor

Enclosures

cc: Office of General Counsel
Pollution Control Branch
Lenoir County Health Department
WaRO File

Jerry Henderson
~~Doug~~ Oronfield } Ch2m Hill
Jay Van Donen

Dick Hargett & others GTE / HKB

Lenoir / Kentec Site (DuPont has another investigation underway

Kentec - cleans precision machine parts

use Triethylene Glycol (TEG)

removes polyester polymer from parts

rinse water is contam w/ TEG

Trichloroethane used as final drying agent for the spinnerettes

began in 1969 - dedicated contract to DuPont

Rinse water originally discharged to road in front of plant

1982 - installed package treatment plant - effluent to drainfield (2000 gpd)

1985 DuPont purchased - shut down package plant

DEM issued pump & haul permit - ships to N.J.

45-60 thousand gallons/mo.

1987 - spill ~~on~~ in front of plant Ch2M Hill came in

removed soil

1987 reviewed Phase I findings w/ WaRO

1988 Reviewed findings with DEM

1989

Domestic tank goes into septic tank

Contract firm did monitoring of drain field, used pitcher pump and gallon of water to prime each well -

Phase 1 6 mon wells around drain field.

Phase 2 - limited characterization of geol
2 more wells - verify problem
hydr cond. measurement

Phase 3 - 4 deep
8 shallow wells
2 sampling
looked at remediation options

Deep wells 7, 14, 4, 10

1,4 dioxane
~~1,1 dichloroethylene~~

Soil samples on drain field area relatively clean

Dioxane is miscible, dissolves and mixes with H_2O - Concerned that stuff is still in high concentrations

not finding parent compounds - only breakdown products

VOC ?
SOC ?

Peedee – no compounds in deep monitor or local domestic wells –
Production well 100' ~~deep~~ – 1969'
100 ug/l
~~50-60~~ "

Sediment – 1,4 dioxane conc. in sediment are < those in surface water
100 ppm or less

Bromonitoring – no adverse impact on ~~bio~~ organisms

Question
MW 1, 3, 8 – why no decrease in 1,4 dioxane ?

Does discharge plumbing leak? Wet well?
Underground tanks used for precipitating titanium dioxide – in form of septic tanks (masonry, 2 cell)
They were full of saturated sludge – could have provided effluent to plumbing lines –
powdered stainless steel metal disposed of on SW side of plant

probably will use chemical oxidation
as primary treatment method

12/13/90

Want to proceed so as to stop off site contam

met with neighbors -

on site deep
on site shallow
off site shallow -

deep well had shown contam - recent sampling showed no contam -

Eliminate sources

Dulant has met with all families in neighborhood

no deep well at swimming pool -
no deep or shallow wells east of plant

all tanks out of ground -

In process of GRP lining on process tank

all dikes around containers being cleaned and coated with epoxy -

Underground line being checked weekly (pressure checks) line is not leaking - line to be placed above ground.

Neighbors being very cooperative - follow up visits very important because citizens usually don't react initially - they wait until they get more info

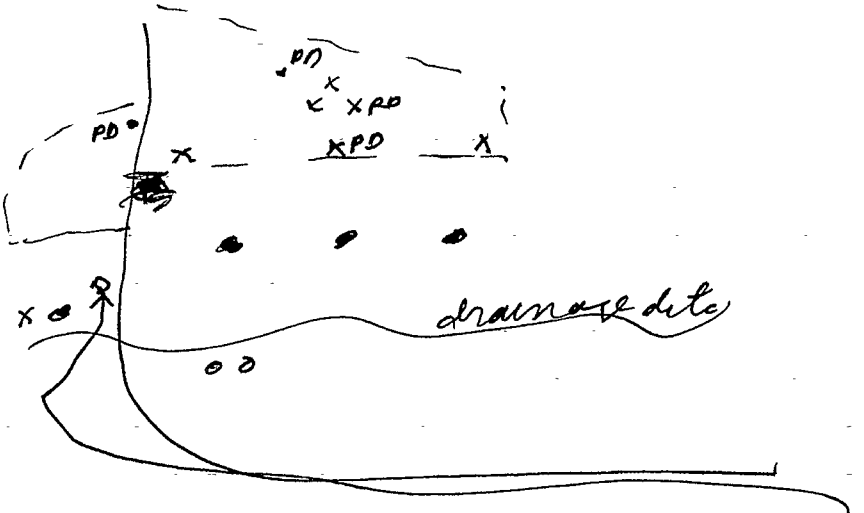
Cleanup Plan 12-13-90

Dick will mention dioxane conc. in creek to - Stone

Dont know whats happening off site in shallow system - (to East and S)

will put in 3 shallow mon wells east of property - about 250' east of prop.

will put a couple of wells just east of drainage ditch



will abandon supply well and 100' well

all residential wells clean

will prone (?) that deep well zones not contain

will replace supply well with deep mon. well, will put 2 more on the Eastern boundry (100') Also a 50' mon well at same site

- NOV ?

will also put in piezometer south of Beaver Dam Cr. -

ON SITE

Trench around facility — collect GW - treat + dispose -

Treatment problems - 1-4 dioxane very soluble -

What is our cleanup level?

Det limit of 50 ug/L 1,4-Dioxane at CHM Hill lab -

Method 8015 P&T

EPA MDL = 150 ug/L (RCRA GW mon.) = PQL

NC std is 7 ug/L

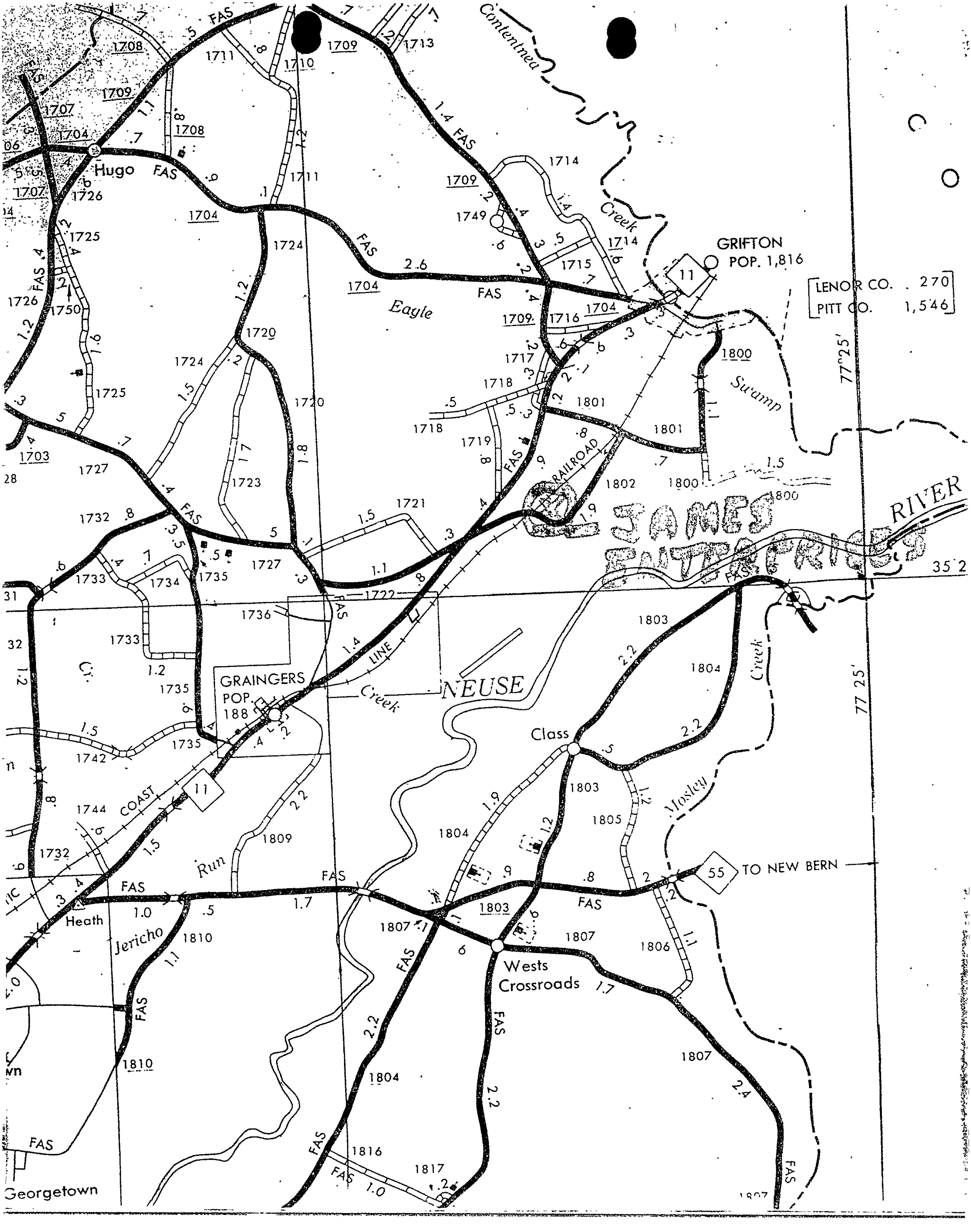
On site cleanup will begin ASAP

Offsite - drilling to begin late Jan -

No NOV to date!

want to implement on-site remediation ASAP plan ready - off site plan must await field work

SOC should implement on-site plan and refer to forthcoming off site plan -



GRIFTON
POP. 1,816
LENOIR CO. 270
PITT CO. 1,546
Hugo
GRAINGERS
POP.
188
Class
Wests
Crossroads
Heath
Georgetown
TO NEW BERN
55
11
NEUSE
RIVER
Contentnea
Creek
Eagle
Swamp
Mosley
Creek
Jericho
Run
Cr.
COAST
LINE
RAILROAD
FAS
77°25'
77 25'
35 2

COMPLIANCE MONITORING REPORT FORM

Environmental Management Division
Groundwater Section
P.O. Box 27687
Raleigh,N.C. 27611
(919)733-5083

Facility Name Center, Inc. County Lenoir

Address R. 3, Box 116 Permit Number: 2200

Kinston, NC 28530 Non-Discharge

Well Location 130' to left of gate NPDES

Well Identification Number #1 Well Depth 2.58 Ft. Water Use

Well Diameter 2" Sample (Screened) Interval 4.5 Ft. To 0.5 Ft. Injection Well

Depth to Water Level 2.90 ft. below measuring point. (before sampling) Well Construction

Measuring point is 0.67 feet above land surface Other

Gallons of water pumped bailed before sampling

Field Analysis: pH ____ Specific Conductance ____ uMhos Temp. ____ °C Odor ____ Appearance ____

Date Sample Collected 12/6/85 Date Lab Sample Analyzed 12/6/85

Laboratory Name Environmental 1, Inc. Certification No. 40

COD	0.0 mg/l	NO_2 as N	mg/l	Ni - Nickel	mg/l
Coliform: MF Fecal	/100ml	NO_3 as N	mg/l	Pb - Lead	mg/l
Coliform: MF Total	/100ml	Phosphorus: Total as P	mg/l	Zn - Zinc	mg/l
Dissolved Solids: Total	mg/l	Al - Aluminum	mg/l	Pesticides/Herbicides (Specify Compounds)	
pH (when analyzed)	6.6 units	Ba - Barium	mg/l		ug/l
TOC	mg/l	Ca - Calcium	mg/l		ug/l
Chloride	mg/l	Cd - Cadmium	mg/l		ug/l
Arsenic	mg/l	Chromium: Total	mg/l	Other (Specify)	ug/l
Grease and Oils	mg/l	Cu - Copper	mg/l	Total Resins 2170 mg/l	ug/l
Hardness: Total	mg/l	Fe - Iron	mg/l		ug/l
Phenol	mg/l	Hg - Mercury	mg/l		ug/l
Sulfate	mg/l	K - Potassium	mg/l		ug/l
Specific Conductance	uMhos	Mg - Magnesium	mg/l		ug/l
Total Ammonia(NH_3 + NH_4)	mg/l	Mn - Manganese	mg/l		
TKN as N	mg/l	Na - Sodium	mg/l		

Note:

Values should reflect total concentrations

I CERTIFY THAT THIS REPORT IS TRUE AND ACCURATE.

Earl E Lane 1/22/86

SIGNATURE OF PERMITTEE (OR AUTHORIZED AGENT*) DATE

* See back for instructions

** Submit blue and green copies to address above.

GW-59 Revised 7/85

COMPLIANCE MONITORING REPORT FORM

Environmental Management Division
Groundwater Section
P.O. Box 27687
Raleigh,N.C. 27611
(919)733-5083

Facility Name Kentec, Inc. County Lenoir

Address Rt. 2, Box 116 Permit Number: 7210

Grifton, NC 28530 Non-Discharge X

Well Location 100' to left of gate NPDES

Well Identification Number 42 Well Depth 54.5 Ft. Water Use

Well Diameter 2" Sample (Screened) Interval 44 Ft. To 54 Ft. Injection Well

Depth to Water Level 2.77 ft. below measuring point. (before sampling) Well Construction

Measuring point is 1.67 feet above land surface Other

Gallons of water pumped bailed before sampling 1.1

Field Analysis: pH _____ Specific Conductance _____ uMhos Temp. _____ °C Odor _____ Appearance _____

Date Sample Collected 11/6/85 Date Lab Sample Analyzed 12/6/85

Laboratory Name Environment 1, Inc. Certification No. 10

COD	23 mg/l	NO_2 as N	mg/l	Ni - Nickel	mg/l
Coliform: MF Fecal	/100ml	NO_3 as N	mg/l	Pb - Lead	mg/l
Coliform: MF Total	/100ml	Phosphorus: Total as P	mg/l	Zn - Zinc	mg/l
Dissolved Solids: Total	mg/l	Al - Aluminum	mg/l	Pesticides/Herbicides (Specify Compounds)	
pH (when analyzed)	7.5 units	Ba - Barium	mg/l		ug/l
TOC	mg/l	Ca - Calcium	mg/l		ug/l
Chloride	mg/l	Cd - Cadmium	mg/l		ug/l
Arsenic	mg/l	Chromium: Total	mg/l	Other (Specify)	ug/l
Grease and Oils	mg/l	Cu - Copper	mg/l	Total Residue 329 mg/l	ug/l
Hardness: Total	mg/l	Fe - Iron	mg/l		ug/l
Phenol	mg/l	Hg - Mercury	mg/l		ug/l
Sulfate	mg/l	K - Potassium	mg/l		ug/l
Specific Conductance	uMhos	Mg - Magnesium	mg/l		ug/l
Total Ammonia(NH_3 + NH_4)	mg/l	Mn - Manganese	mg/l		
TKN as N	mg/l	Na - Sodium	mg/l		

Note:

Values should reflect total concentrations

* See back for instructions

** Submit blue and green copies to address above.

I CERTIFY THAT THIS REPORT IS TRUE AND ACCURATE.

[signature] 1/22/86

SIGNATURE OF PERMITTEE (OR AUTHORIZED AGENT*) DATE

GW-59 Revised 7/85

COMPLIANCE MONITORING REPORT FORM

Environmental Management Division
Groundwater Section
P.O. Box 27687
Raleigh,N.C. 27611
(919)733-5083

Facility Name Jenkins, Inc
Address Rt. 3, Box 110
Grifton, NC 28530

County Lenoir
Permit Number: 7210
Non-Discharge X
NPDES
Water Use
Injection Well
Well Construction
Other

Well Location Approx. ½ mile in back of field
Well Identification Number #1 Well Depth 54 Ft.
Well Diameter 2" Sample (Screened) Interval 44 Ft. To 54 Ft.
Depth to Water Level 5.40 ft. below measuring point. (before sampling)
Measuring point is 1.58 feet above land surface
Gallons of water pumped bailed before sampling 10
Field Analysis: pH _____ Specific Conductance _____ uMhos Temp. _____ °C Odor _____ Appearance _____
Date Sample Collected 12/3[illegible]/85 Date Lab Sample Analyzed 12/6/85
Laboratory Name Environmental L. Inc. Certification No. 10

COD	49 mg/l	NO_2 as N	mg/l	Ni - Nickel	mg/l
Coliform: MF Fecal	/100ml	NO_3 as N	mg/l	Pb - Lead	mg/l
Coliform: MF Total	/100ml	Phosphorus: Total as P	mg/l	Zn - Zinc	mg/l
Dissolved Solids: Total	mg/l	Al - Aluminum	mg/l	Pesticides/Herbicides (Specify Compounds)	
pH (when analyzed)	7.0 units	Ba - Barium	mg/l		ug/l
TOC	mg/l	Ca - Calcium	mg/l		ug/l
Chloride	mg/l	Cd - Cadmium	mg/l		ug/l
Arsenic	mg/l	Chromium: Total	mg/l	Other (Specify)	ug/l
Grease and Oils	mg/l	Cu - Copper	mg/l	Total Residue 704 mg/l	ug/l
Hardness: Total	mg/l	Fe - Iron	mg/l		ug/l
Phenol	mg/l	Hg - Mercury	mg/l		ug/l
Sulfate	mg/l	K - Potassium	mg/l		ug/l
Specific Conductance	uMhos	Mg - Magnesium	mg/l		ug/l
Total Ammonia(NH_3 + NH_4)	mg/l	Mn - Manganese	mg/l		
TKN as N	mg/l	Na - Sodium	mg/l		

Note:
Values should reflect total concentrations

I CERTIFY THAT THIS REPORT IS TRUE AND ACCURATE.

[signature] 1/22/86
SIGNATURE OF PERMITTEE (OR AUTHORIZED AGENT*) DATE

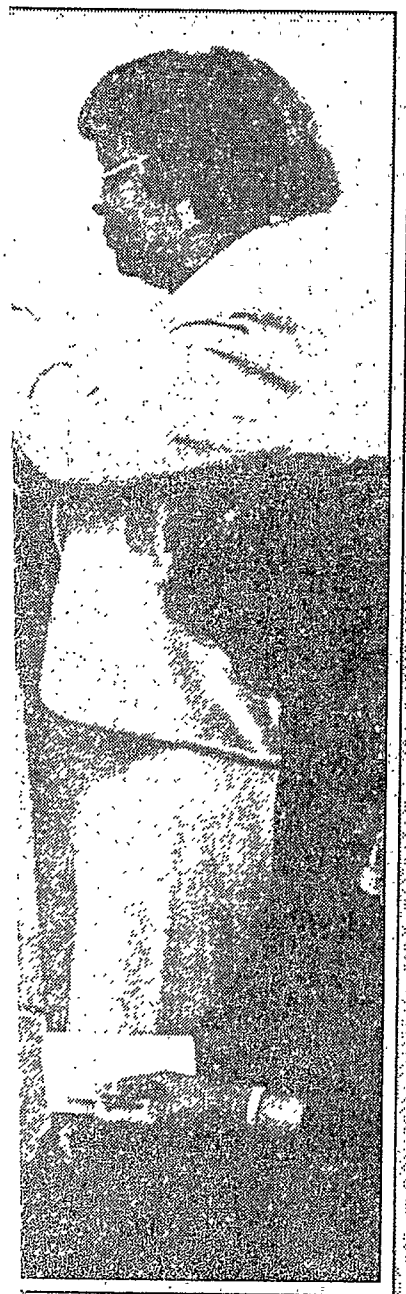
* See back for instructions
** Submit blue and green copies to address above.

GW-59 Revised 7/85

① Stopped operation 1-86
② pump + haul till new WWTP installed
③ New monitor GW scheme when new WWTP started.
④ some Remedial Action to be required after new WWTP.
⑤ there is a timetable for work.
⑥ Should continue GW monitoring + develope Remedial Action Plan
⑦ Discuss w/ Cheek
⑧ Kentec is wholly owned subsidiary of Du Pont now
⑨ Pump + Haul Permit issued 3/86 #12725

ıty - Region

erfect'



The Daily Reflector/Michael Hall

ın Bailey and Dr. Ann

Born about 1900, Ms. Atkinson as the second-oldest of the 12 ildren of the Rev. Joseph May Sr. id his wife, Mamie Donaldson

Du Pont Says It Will Clean Water Under Facility

By J. Ward Best
THE DAILY REFLECTOR

Du Pont in Kinston has announced plans to begin cleaning contaminated groundwater at its parts cleaning facility.

Tests conducted by the textile manufacture found chemically contaminated water at several sites underneath about six acres at the Kentec cleaning facility north of the main plant. The tests show contamination by a suspected cancer-causing agent, but the state environmental office does not consider the site a threat to the surrounding area or nearby residents.

"The key thing, to start with, is to make sure nothing else is going in the ground," Jerry Henderson, Du Pont site environmental manager, said today.

Henderson said the investigation is continuing, and a cleanup plan has not yet been proposed.

The state Division of Environmental Management has reviewed the company's environmental testing. The state will also approve any cleanup project, according to Willie Hardison, supervisor the the agency's groundwater section.

"We certainly are very interested in the site," Hardison said. "Before we make any kind of decision we want to know everything that's going on, especially when it comes to remediation."

The residences near the Kentec cleaning plant are served by public water service, Hardison said. And he said he did not know of any potential hazards beyond the environmental damage.

E.I. Du Pont De NeMours & Co. bought the cleaning facility about five years ago from a dedicated contractor, James Enterprises Inc. The contractor had been cleaning parts for fabric manufacturing, and water used in the cleaning process had caused the contamination.

Henderson said he did not know when the cleanup would begin or how long it might take.

"We're still in a research phase," he said. "We have to define the problem fully" before starting any cleanup.

Henderson also said he could not estimate the cost of the cleanup project.

"It's certainly going to be significant. Any time you're involved in a groundwater cleanup it's a very expensive operation."

Du Pont found the greatest contamination from 1,4-Dioxane, a compound the Environmental Protection Agency lists as a suspected carcinogen.

Henderson said smaller amounts of two other chemical compounds were found in the groundwater tests.

"We're finding about what we though we'd find," he said.

Henderson also pointed out that the cleaning process and the water treatment process used at the plant had state approval at the time the contamination likely occurred.

"The disposal process is far more critical, he said. "We wouldn't do it today."

Henderson said the company had met with the nearby residents to explain the problems at the site and discuss cleanup plans.

Hardison commended Du Pont for its investigation and its actions so far.

Havelock Man Dies In Wreck

SITE INFO BULLETIN

Earlier this year Video News focused on the installation of some monitoring wells on the site property. These wells were installed to assess the potential for problems resulting from past disposal practices. We are conducting a similar survey at the Kentec Pack Cleaning facility. Past disposal practices were fully approved at the time. Increased environemntal awareness has led to improvements in disposal practices. Consistent with our policy to keep plant employees fully informed of environmental activities, we want to update you on the status of these surveys.

Initial data from the site survey indicate that some of the chemicals disposed of in the ground on the back of the property, still remain in trace amounts. We plan to perform additional testing to further define the extent of this problem and what, if any, corrective action may be required.

The survey at the Kentec facility shows a similar pattern to what has been found on the site. Additionally, trace amounts of some chemicals have been found in surface waters.

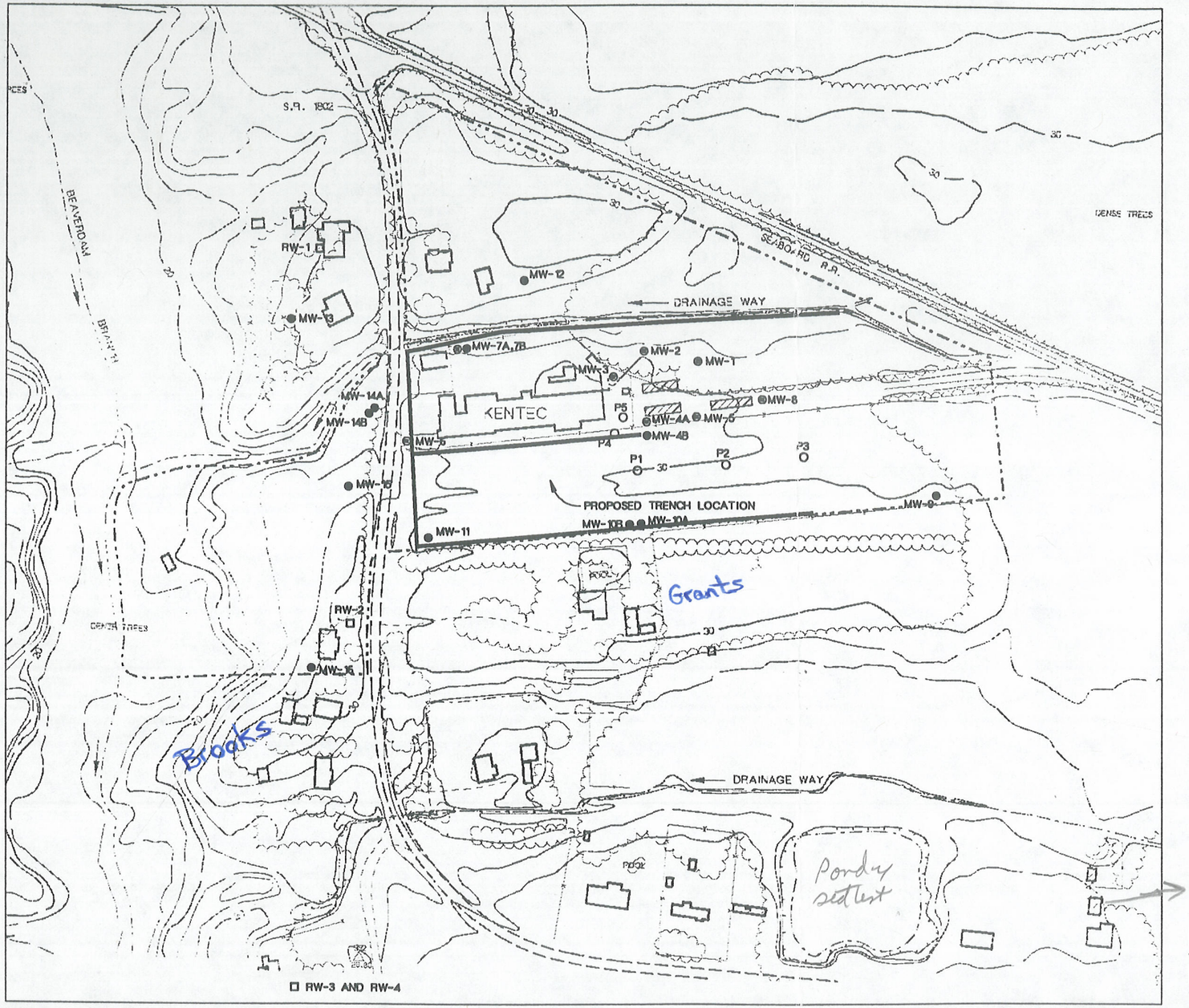
There is no trace of contamination in the site drinking water supply. The Kentec facility, and individuals living in the neighborhood, obtain their drinking water from a community water system that comes from deep wells in the same aquifier from which we get site drinking and process water. There is no trace of contamination in the Neuse River or in Beaverdam Branch.

We are working with state regulatory authorities to define what additional actions are required.

J. D. Henderson
Site Environmental Coordinator

POST:

REMOVE:



N

LEGEND

- ◉ PHASE 1 AND 2 MONITORING WELL
- ● PHASE 3 MONITORING WELL
- □ RESIDENTIAL WELL
- ○ PIEZOMETERS

NOTE: BASE MAP COMPILED FROM AERIAL PHOTOGRAPHY FLOWN ON 2/10/89.

0 100 200 300

SCALE: 1"=200'

comercial painter

ES - 4

LOCATION OF GROUNDWATER INTERCEPTOR TRENCH
Du Pont Kentec Facility

CH2MHILL

2388f056.dgn 3-Jul-1991

1,4-DIOXANE

CHEMICAL: 1,4-DIOXANE, USED AS A SOLVENT FOR LACQUERS, PAINTS, VARNISHES AND IN PAINT AND VARNISH REMOVERS. USED AS A WETTING AND DISPERSING AGENT IN TEXTILE PROCESSING, DYE BATHS, STAIN AND PRINTING COMPOSITIONS.

HOW IS IT PRODUCED/USED? BY-PRODUCT OF POLYESTER POLYMERIZATION REACTION. ALSO GENERATED IN CLEANING OF PARTS WITH GLYCOL.

WHY HAZARDOUS? HIGHLY FLAMMABLE AT HIGH CONCENTRATIONS, TOXIC, SUSPECTED CARCINOGEN BASED ON ANIMAL DATA

PHYSICAL CHARACTERISTICS: COLORLESS LIQUID, ETHEREAL ODOR MISCIBLE WITH WATER AND MOST ORGANIC SOLVENTS BP 101°F FP 65°F

ALLOWABLE EXPOSURE:

- DU PONT RESEARCH INDICATES UP TO ABOUT 90 MG/DAY IS AN ACCEPTABLE DOSE.

- TO REACH A DOSE OF 90 MG/DAY BASED ON ON 11 PPM FOUND IN SURFACE WATER WOULD REQUIRE DRINKING OVER 8 LITERS OF WATER/DAY

  - 11 PPM = 11 MG/l

  - $\frac{90 \text{ MG/DAY}}{11 \text{ MG/l}} = 8.18 \text{ LITERS/DAY}$

KENTEC NEIGHBORS COMMUNICATION PLAN

1. Key Points

- START WITH SPILL 4/87
  - RECOGNIZED EXTENT OF PROBLEM AND NEIGHBORHOOD CONCERN
  - COMMITTED TO DEFINE AND RESOLVE PROBLEMS
- BROUGHT IN ENVIRONMENTAL CONSULTANTS
  - TO HELP DEFINE PROBLEMS
  - TO RECOMMEND SOLUTIONS
- IMPROVED CONTROL OF PERSONNEL
  - ADDED ADDITIONAL SUPERVISION
  - EDUCATED OPERATING PERSONNEL
  - REASSIGNED PERSONNEL TO ASSURE CONTROL OF OPERATIONS
- IMPROVED CONTROL OF PROCESS
  - REPLACED SEALS ON TANKS
  - COLLECT TANK VENTS INTO SEAL POTS
  - ADDED RAIL SPUR TO PUT LOADING AWAY FROM NEIGHBORS
  - REDUCED TRUCK TRAFFIC
- IMPROVED COMMUNITY IMAGE
  - PAINTED
  - LANDSCAPED
  - PAVED TO REDUCE DUST
  - EXPANDED BUILDING
  - HELD OPEN HOUSE

- CONSULTANTS RECOMMENDED MONITORING WELLS AND A SAMPLING PROGRAM

- WANT TO REVIEW:

  - WHAT WE HAVE FOUND
  - WHAT WE SHARED WITH THE STATE
  - WHAT WE WILL SHARE WITH THE PRESS

  (USE MAP OF SITE AND PRESS STATEMENT)

- WE FEEL SITUATION NOW IS

  - BETTER UNDERSTOOD
  - BETTER CONTROLLED
  - BETTER THAN IT WAS

- MAY WANT TO DRILL SOME MONITORING WELLS ON YOUR PROPERTY

/pwo
EC A:1:41

PROPOSED ONSITE PEEDEE AQUIFER GROUNDWATER INVESTIGATION

- Install one monitoring well (50-feet deep) near MW11
- Install three monitoring wells (100-feet deep) in the vicinity of and downgradient of PW1
- Abandon PW1
- Sample all eight Peedee aquifer monitoring wells

PROPOSED OFFSITE GROUNDWATER INVESTIGATIONS

- Install and sample seven shallow monitoring wells
- Sample residential wells
- Sample four surface water locations

SUMMARY OF INVESTIGATIONS

- **Phase 1 (1987) - Identification of problem**
  - **6 shallow monitoring wells installed**
  - **groundwater and surface water sampling**

- **Phase 2 (1988) - Verification and limited characterization of problem**
  - **2 shallow monitoring wells installed**
  - **groundwater and surface water sampling**
  - **hydraulic conductivity measurements**

- **Phase 3 (1989/1990) - Characterization of onsite problem**
  - **topographic map**
  - **4 deep and 8 shallow monitoring wells installed**
  - **2 rounds of groundwater and surface water samplings**
  - **biomonitoring study**
  - **facility audit**
  - **begin investigations of remediation options**

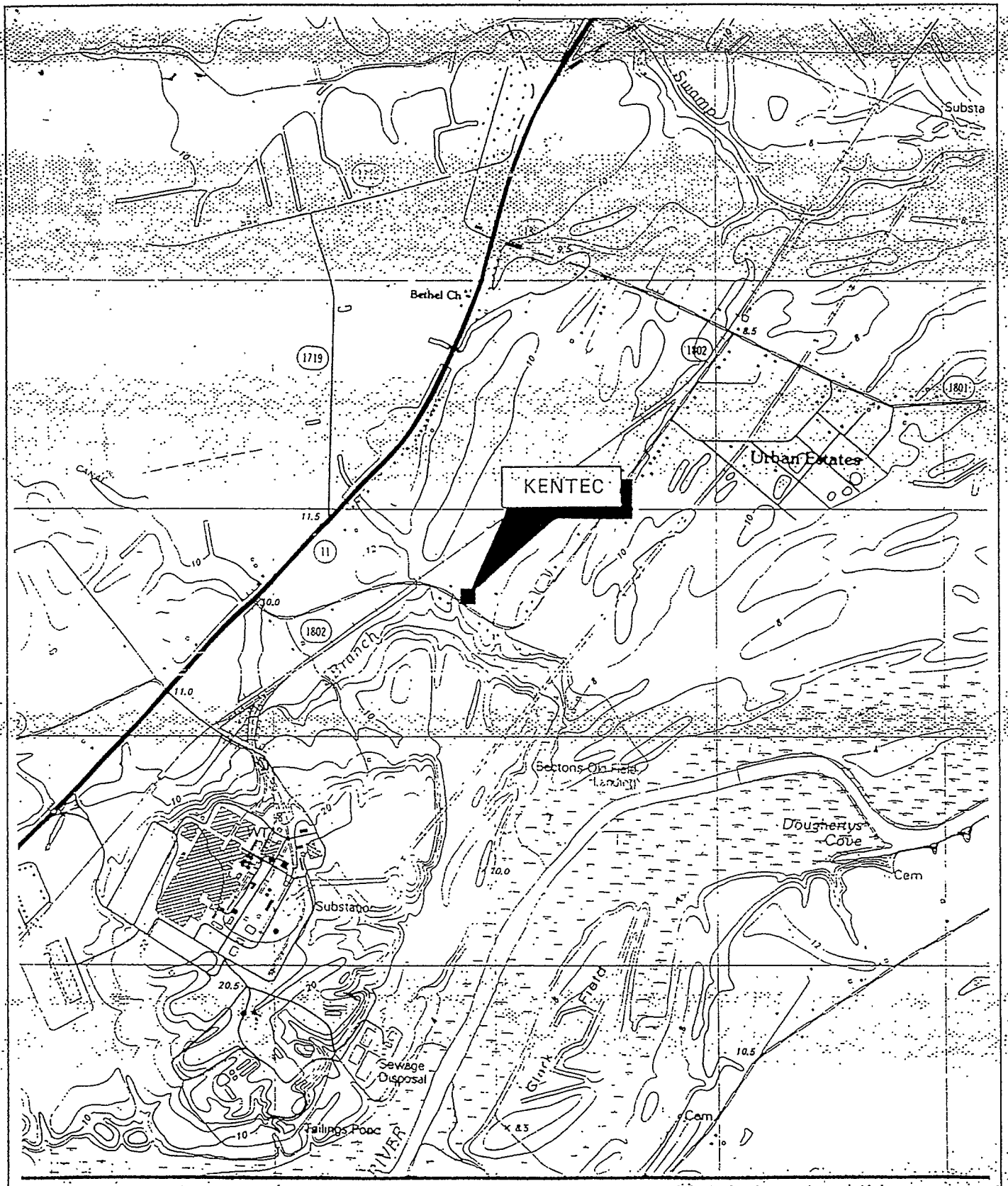
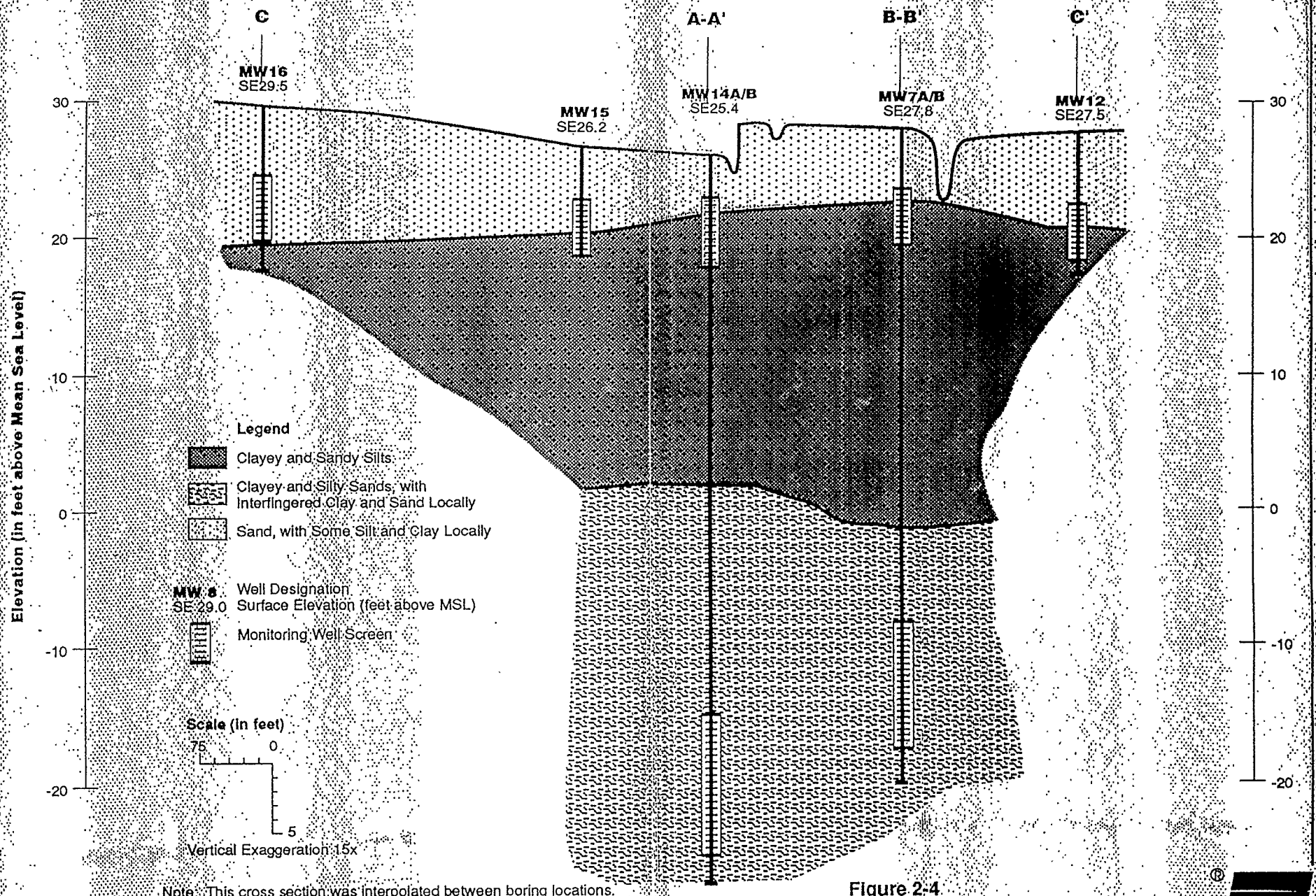


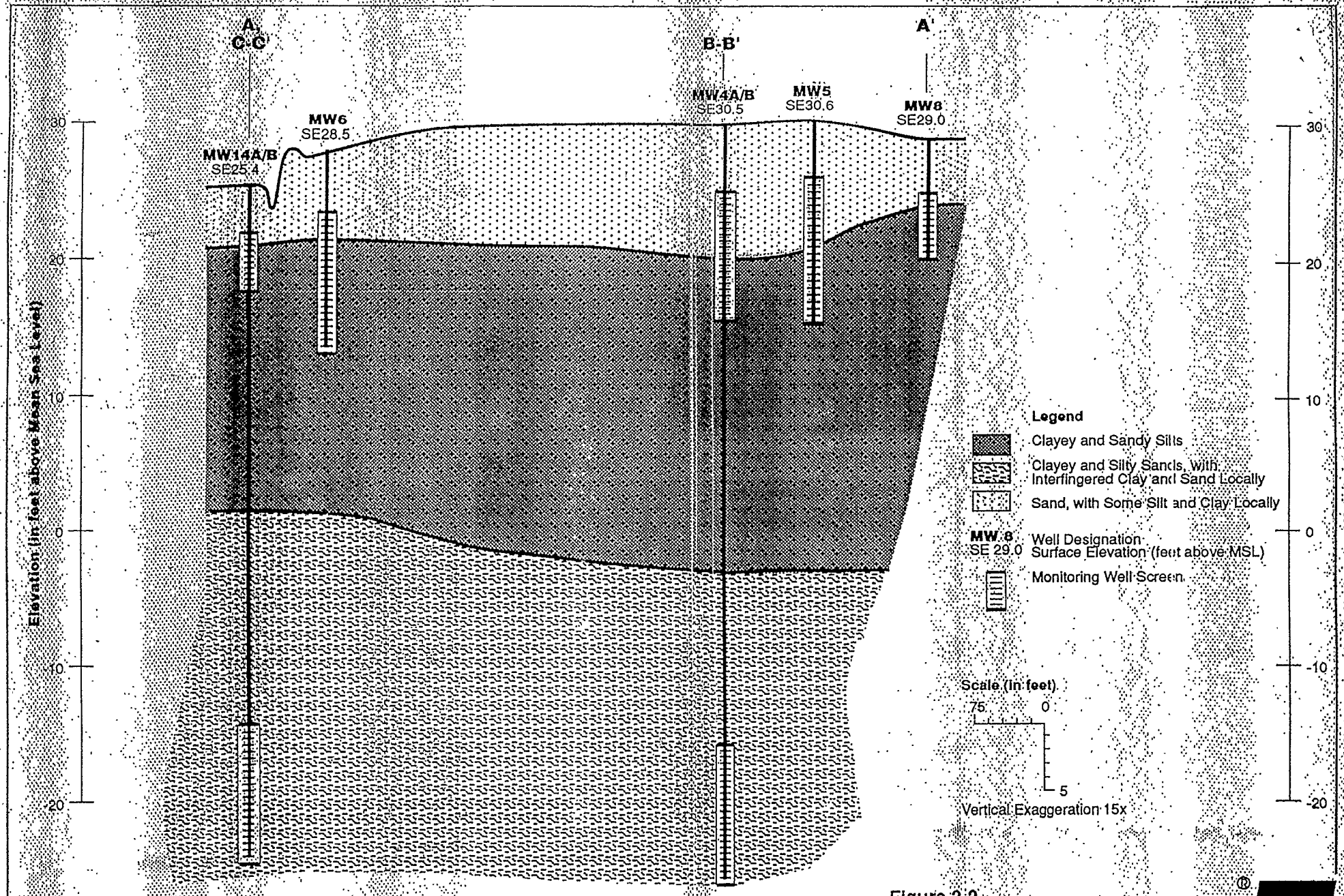
Figure 1-1
KENTEC SITE LOCATION



Note: This cross section was interpolated between boring locations. Actual conditions between boring may differ from those shown here.

Figure 2-4
GEOLOGIC UNIT CROSS SECTION C-C'
DuPont Kentec Facility

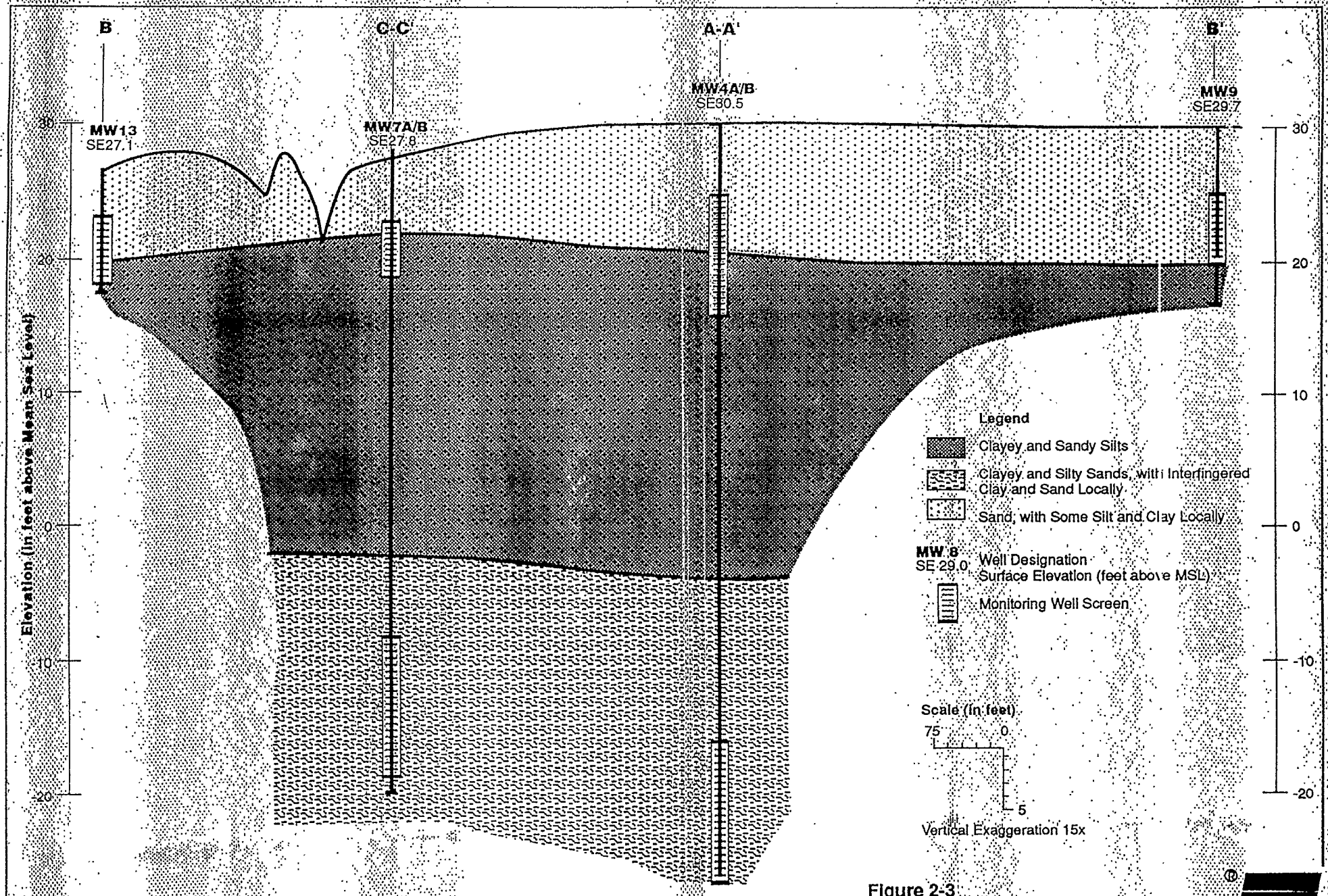
CH2M HILL



Note: This cross-section was interpolated between boring locations.
Actual conditions between boring may differ from those shown here.

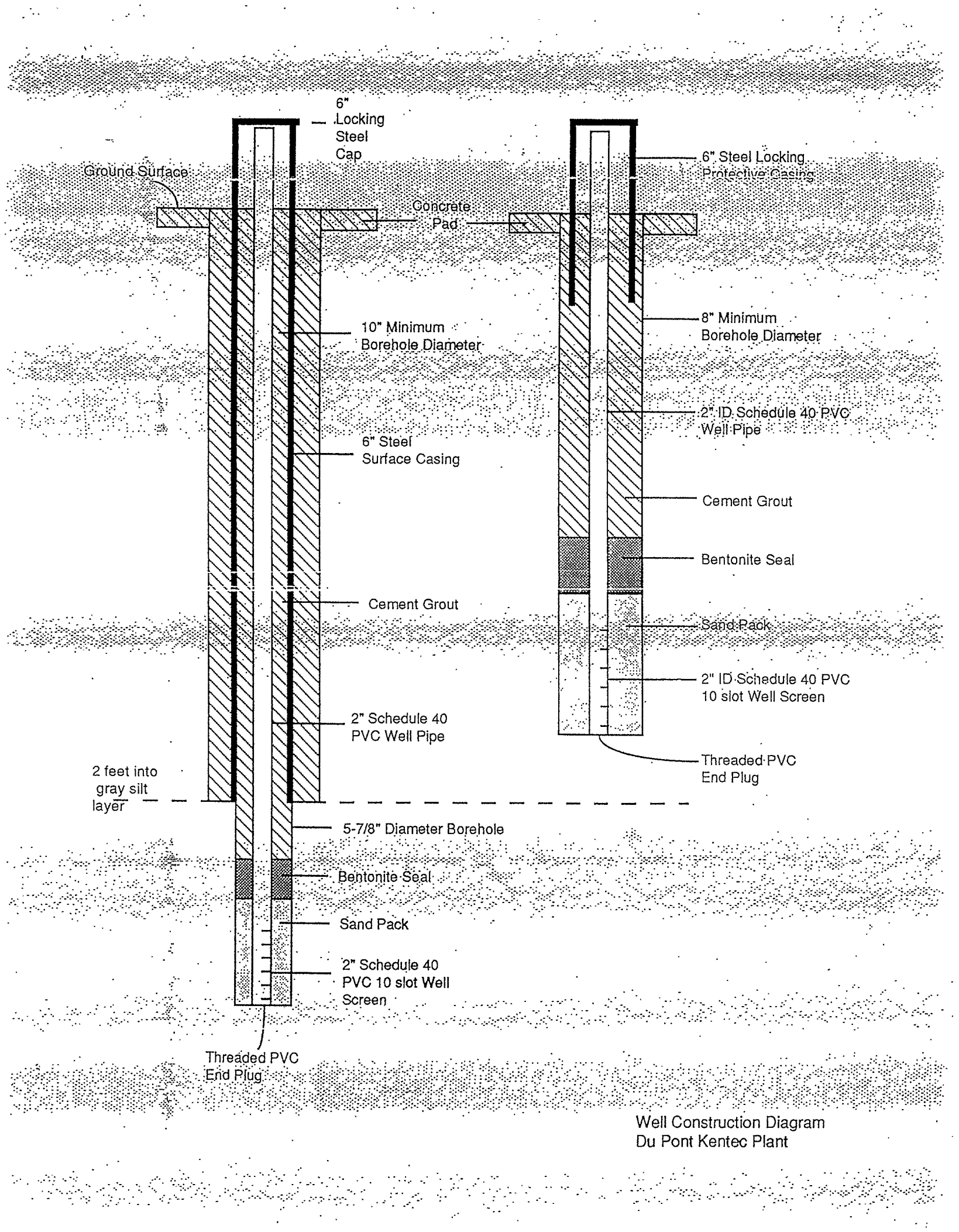
Figure 2-2
GEOLOGIC UNIT CROSS SECTION A-A'
DuPont Kentec Facility

CH2M HILL



Note: This cross section was interpolated between boring locations. Actual conditions between boring may differ from those shown here.

Figure 2-3
GEOLOGIC UNIT CROSS SECTION B-B'
DuPont Kentec Facility



Well Construction Diagram
Du Pont Kentec Plant

SITE GEOLOGY

- **Surficial deposits**
  - **sand with some clay and silt**
  - **5 to 10-feet thick**

- **Upper Peedee formation**
  - **silt with some clay and sand**
  - **20-feet thick**

- **Peedee aquifer**
  - **sands with some silt and clay**
  - **approximately 70 to 100-feet thick**

GROUNDWATER FLOW

Hydraulic Conductivities

Horizontal: Surficial - 4 ft/day
Peedee aquifer - 20 ft/day

Vertical: Peedee silt - 0.002 ft/day

Groundwater Flow

Horizontal: Surficial - 60 ft/year (6 to 530 ft/year)
Peedee aquifer - 100 ft/year (6 to 200 ft/year)

Vertical: Peedee silt - 0.03 to 0.3 ft/year

SHALLOW GROUNDWATER ANALYTICAL RESULTS

- Primary compounds detected: 1,4-dioxane; 1,1-DCE; 1,1-DCA
- Compounds migrating to the drainage ditch system and offsite to the south
- No compounds detected northwest of drainage ditch
- Possible multiple sources
- Concentrations of compounds do not appear to have decreased

ORGANIC CHEMICAL ANALYSIS
SHALLOW GROUNDWATER SAMPLES (µg/l)

Analysis	MW1			MW3			MW4A			MW5			MW6		
	5/87	6/88	1/90	5/87	6/88	1/90	5/87	6/88	1/90	5/87	6/88	1/90	5/87	6/88	1/90
Acetone	35	<10	<10	900	<50	<10	1,000	60	32	140	<10	<10	1,300	22	11
Carbon Disulfide	<5	<5	<5	<5	<25	<5	<5	<25	20	<5	<5	<5	<5	6	20
Chloroethane	<5	<10	120	11	<50	80	<5	<50	150	<5	<10	<10	43	<10	95
1,4-Dichlorobenzene	/	<5	<5	/	<25	<5	/	<5	<5	/	<5	<5	/	<5	<5
1,1-Dichloroethane	<5	5	41	16	280	73	<5	900	800	<5	<5	<5	11	<5	16
1,1-Dichloroethylene	<5	<5	11	<5	<25	13	<5	<25	82	<5	<5	<5	1.7	<5	11
1,4-Dioxane	1,700	2,000	1,200	1,000	5,900	1,100	1,900	5,400	2,300	300	230	<50	16,000	33,000	22,000
Methyl Ethyl Ketone	<10	<10	<10	<10	58	<10	<10	140	11	<10	<10	<10	130	<10	<10
Vinyl Chloride	<10	<10	<10	<10	<10	<10	<10	<10	61	<10	<10	<10	<10	<10	<10
Triethylene Glycol (mg/l)	<10	<5	0.81	<10	<5	0.25	<10	<5	<0.25	<10	<5	<0.25	<10	<5	<0.25
TOC (mg/l)	110	24.9	70.1	65	55.6	26.8	8	313	352	26	19	68.5	609	180	69.1

"<" = Below method detection limit shown.
"/" = Sample not taken or analysis not performed.
"J" = Estimated value. Measured value is less than quantitative detection limit.
"B" = Compound was detected in associated laboratory blank.

Analysis	MW7A		MW8		MW9	MW10	MW11	MW12	MW13	MW14A	MW15	MW16
	6/88	1/90	6/88	1/90	1/90	1/90	1/90	1/90	1/90	1/90	1/90	1/90
Acetone	<10	7J	<10	<5	5J	9J	13	<5	<5	<5	7J	5J
Carbon Disulfide	<5	<5	<5	4J	<5	<5	<5	<5	<5	<5	<5	<5
Chloroethane	<10	100	<10	12	<10	83	190	<10	<10	<10	74	<10
1,4-Dichlorobenzene	7	4J	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	9	10	<5	3J	<5	290	230	<5	<5	<5	13	<5
1,1-Dichloroethylene	<5	12	<5	<5	<5	34	75	<5	<5	<5	27	14
1,4-Dioxane	11,000	5,700	<50	360	49J	430	550	<50	<50	1,600	410	160
Methyl Ethyl Ketone	<10	<10	<10	<10	<10	7J	9J	<10	<10	<10	<10	<10
Vinyl Chloride	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Triethylene Glycol (mg/l)	<5	<0.25	<5	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	0.772	<0.25	<0.25
TOC (mg/l)	31.9	75.0	10.7	15	41	72.2	94.9	6.2	29.0	51.6	21.7	2.3

"<5" = Below method detection limit shown.
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"B" = Compound was detected in associated laboratory blank.

PEEDEE AQUIFER GROUNDWATER ANALYTICAL RESULTS

- **No compounds detected in Upper Peedee 50-foot monitoring wells**
- **No compounds detected in residential wells**
- **Low downward vertical groundwater flow rates suggest minimal migration of compounds through silt unit into Peedee Aquifer**
- **1,4-Dioxane detected (approximately 100 ug/l) in onsite production well that is not in use**

ORGANIC CHEMICAL ANALYSES
PEEDEE AQUIFER GROUNDWATER
(µg/l)

	Monitoring Wells							Residential Wells		Production Well	
	MW4B		MW7B		MW10B	MW14B		RW1	RW2	PW1	
Analysis	1/90	7/90	1/90	7/90	8/90	1/90	7/90	1/90	1/90	8/90	10/90
Acetone	5J	8BJ	6J	7BJ	6BJ	<10	7BJ	<10	6BJ	6J	3BJ
Carbon Disulfide	<5	<5	<5	<5	5	<5	<5	<5	<5	<5	3J
1,4-Dioxane	<50	<50	<50	<50	<50	<50	<50	<50	<50	110	59
Methylene Chloride	<10	10B	<10	5B	13B	<10	9B	<10	<10	6	4BJ
Triethylene Glycol	<250	<1,000	<250	<1,000	<1,000	1,900	<1,000	<250	<250	<1,000	<1,000
Total Organic Carbon	6,300	/	44,600	/	/	29,700	/	5,300	52,000	/	/
Xylenes	<5	<5	<5	<5	3J	<5	<5	<5	<5	<5	2BJ

<5 = Below method detection limit shown.
"/" = Sample not taken or analysis not performed.
"J" = Estimated value. Measured value is less than quantitative detection limit.
"B" = Compound was detected in associated laboratory blank.

SURFACE WATER AND SEDIMENT ANALYTICAL RESULTS

- **Primary compounds detected in surface water: 1,4-dioxane & TEG**
- **Primary compounds detected in all drainage ditch surface water samples**
- **1,4-Dioxane near or below detection limits in Beaver Dam Branch**
- **1,4-Dioxane concentrations in sediment are less than concentrations in surface water**

ORGANIC CHEMICAL ANALYSES
SURFACE WATER SAMPLES
(µg/l)

	KSW9	KSW11		KSW16		KSW20	KSW22		KSW23		KSW24	KS25	KSW27	PS1
Analysis	**11/89**	**7/88**	**11/89**	**7/88**	**11/89**	**11/89**	**7/88**	**11/89**	**7/88**	**11/89**	**11/89**	**11/89**	**11/89**	**11/89**
Acetone	<10	<10	11 B	<10	40 BJ	860 B	<10	<10	<10	<10	54 B	110 B	13 B	10
Carbon Disulfide	1J	12	27	<5	11 J	60 J	<5	14	<5	10	130	39	16	28
Chloroethane	14	<10	34	<10	<50	<100	<10	<10	<10	<10	<50	<50	<10	<10
1,1-Dichloroethane	<5	14	2J	<5	<50	<100	<5	<5	<5	<5	<25	<25	<5	<5
1,4-Dioxane	1,100	26,000	1,600	11,000	4,700	44,000	<50	<50	<50	58	6,700	6,500	490	<50
Methylene Chloride	9 B	<10	10 B	<10	37 B	90 BJ	16	5 B	<10	5 B	30 B	18 BJ	13 B	<10
Trichloroethylene	<5	<5	<5	<5	5 J	<100	<5	<5	<5	<5	<25	<25	/	<5
Triethylene Glycol (mg/l)	2.4	<5	2.6	<5	1.1	53	<5	4.1	<5	4.9	0.51	5.0	<0.25	<0.25
TOC (mg/l)	38.2	103	28.8	17.6	51.2	/	<1	6.9	16.7	7.7	/	88.8	36.9	10.1

<5 = Below method detection limit shown.
"/" = Sample not taken or analysis not performed.
"J" = Estimated value. Measured value is less than quantitative detection limit.
"B" = Compound was detected in associated laboratory blank.

ORGANIC CHEMICAL ANALYSES
SURFACE WATER SAMPLES
BEAVERDAM BRANCH
(μg/l)

	Upstream				Downstream			
	SW22			SW28	SW23			SW29
Analysis	7/88	11/89	8/90	8/90	7/88	11/89	8/90	8/90
Acetone	<10	<10	15B	16B	<10	<10	15B	22B
Carbon Disulfide	<5	14	55	1J	<5	10	6	2J
1,1-Dichloroethylene	<5	<5	<5	2J	<5	<5	<5	<5
1,4-Dioxane	<50	<50	<50	<50	<50	58	<50	<50
Methylene Chloride	16	5B	6B	6B	<10	5B	20B	21B
1,1,1-Trichloroethane	<5	<5	<5	3J	<5	<5	<5	<5
Triethylene Glycol	<5,000	4,100	3,600	<1,000	<5,000	4,900	<1,000	<1,000
Total Organic Carbon	<1,000	6,900	/	/	16,700	7,700	/	/

<5 = Below method detection limit shown.
"/" = Sample not taken or analysis not performed.
"J" = Estimated value. Measured value is less than quantitative detection limit.
"B" = Compound was detected in associated laboratory blank.

ORGANIC CHEMICAL ANALYSES
SEDIMENT SAMPLES
(µg/kg)

	KSED9	KSED11	KSED16	KSED20	KSED22	KSED23	KSED24	KSED25	KSED27
Analysis	**11/89**	**11/89**	**11/89**	**11/89**	**11/89**	**11/89**	**11/89**	**11/89**	**11/89**
Acetone	<10	<10	<10	170 B	<10	64 B	20 B	45 B	<10
Carbon Disulfide	1 J	13	<5	3 J	<5	24	<6	22	2 J
1,4-Dioxane	1,000	210	1,800	18,000	280	1,500	1,000	2,400	<50
Methylene Chloride	98 B	95 B	13 B	89 B	140 B	30 B	57 B	67 B	150 B
Triethylene Glycol	<250	<250	<250	760	<250	<250	<250	390	<250

<5 = Below method detection limit shown.
"/" = Sample not taken or analysis not performed.
"J" = Estimated value. Measured value is less than quantitative detection limit.
"B" = Compound was detected in associated laboratory blank.

BIOMONITORING RESULTS

- 1,4-Dioxane observed in surface water samples does not appear to be adversely impacting the biological community
- No apparent difference in benthic populations between locations where 1,4-dioxane is elevated and where it is low
- Bioassay test results - no acutely toxic effect of organic concentrations in the surface water

SCOPE OF KENTEC AUDIT

- Identify potential sources of groundwater contamination from existing operations and, to the extent possible, past operations
- Identify sampling strategies and investigations methods that could be used to confirm and quantify potential contaminant sources
- Implement sampling and investigations
- Take action based on results

ORGANIC CHEMICAL ANALYSES
FACILITY AUDIT SAMPLING

	Water Samples (µg/l)						Soil/Sludge Samples (µg/kg)									
							Sludge Tank		Drainline Soil		Soil Borings					
Analysis	Wet Well	Rinse Water	Drainbox A	Drainbox B	Drainbox C	ST-3	ST-1	ST-2	SS1	SS2	SB1S	SB1D	SB2S	SB2D	SB3S	SB3D
Acetone	150B	110B	7BJ	11B	8BJ	<10,000	230B	3,200J	17B	19B	64B	85B	54B	47B	51B	81B
1,1-Dichloroethane	32J	<5	<5	<5	<5	<5,000	78	11,000	<6	<6	<6	<6	<6	<6	<6	<6
1,1-Dichloroethylene	72	<5	<5	<5	<5	46,000	<6	5,400	<6	<6	<6	<6	<6	<6	<6	<6
1,4-Dioxane	27,000	2,500	<50	<50	<50	<50,000	2,400	29,000	1,000	<52	120	560	240	910	<58	360
Methylene Chloride	11BJ	4BJ	7B	4BJ	7B	2,100BJ	43B	2,200BJ	72B	25B	53B	35B	24B	24B	15B	110B
Methyl Ethyl Ketone	160	<10	7B	<10	<10	<10,000	110	<5,300	<11	<11	7J	<12	7J	<12	<12	5J
1,1,1-Trichloroethane	630	<5	<5	<5	<5	120,000	3J	95,000	<6	<6	<6	<6	<6	<6	<6	<6
Toluene	<40	<5	1J	1J	4J	<5,000	2J	<2,900	34	2J	<6	<6	<6	<6	<6	<6
Ethylbenzene	<40	<5	<5	<5	<5	<5,000	2J	<2,900	<6	<6	<6	<6	<6	<6	<6	<6
Xylenes	<40	<5	<5	<5	<5	2,300BJ	6	<2,900	<6	<6	<6	<6	<6	<6	<6	<6
Triethylene Glycol	4,000,000	520,000	<1,000	<1,000	<1,000	360,000	43,000	60,000	3,100	<1,000	7,700	6,800	2,600	1,700	<1,200	<1,200

<5 = Below method detection limit shown.
"/" = Sample not taken or analysis not performed.
"J" = Estimated value. Measured value is less than quantitative detection limit.
"B" = Compound was detected in associated laboratory blank.

ACTIONS AT KENTEC

- Drainline pipe cracks identified and repaired
- Fiberglass liner to the placed in wet well
- Concrete lined trench to be placed around drainline
- Tanks and contents to be removed
- Sealing expansion cracks in concrete
- Pressure testing line to rail car

KENTEC ONSITE REMEDY COMPONENTS

- Shallow groundwater removal
- Groundwater treatment
- Treated water discharge
- Soil removal

SHALLOW GROUNDWATER REMOVAL OPTIONS

- **Extraction Wells**

  Limited effectiveness due to small saturated thickness of shallow groundwater

- **Subsurface Drain**

  Potentially effective for shallow groundwater and because of silt layer

TARGET CONTAMINANTS

- 1,4 - Dioxane
- 1,1 - Dichloroethane
- 1,1 - Dichlorethene

GROUNDWATER TREATMENT OPTIONS

- Carbon adsorption
- Biological treatment
- Air striping
- Chemical oxidation
- Transport offsite

TREATED WATER DISCHARGE

- Release to Beaver Dam Branch
- Transport to Kinston WWTP
- Release to subsurface for flushing
- Use as production water

SOIL REMOVAL

- Excavate soil above cleanup levels
- Transportation and offsite disposal
- Onsite treatment if volumes are large

MEETING IN RWL
12/14/90

AGENDA

INTRODUCTION	HARGITT
SITE GROUNDWATER STUDY	DRONFIELD
POTENTIAL REMEDIAL ACTION	VAN DEVEN
COMMUNICATIONS PLAN	HENDERSON
ISSUES AND PATH FORWARD	HENDERSON

PARTICIPANTS

R.J. "DICK" HARGITT

- DU PONT
- N.C. HEALTH AND ENVIRONMENTAL AFFAIRS MANAGER

J.D. "JERRY" HENDERSON

- DU PONT
- KINSTON PROJECT MANAGER - GROUNDWATER

D.G. "DOUG" DRONFIELD

- CH2 M HILL
- PROJECT MANAGER
- HYDRO GEOLOGIST

J.A. "JAY" VAN DEVEN

- CH2 M HILL
- ENVIRONMENTAL ENGINEER

SITE OPERATION

- CLEANING PRECISION MACHINED PARTS USED IN THE SPINNING OF POLYESTER FIBERS AT DU PONT'S KINSTON AND CAPE FEAR FACILITIES.

- CLEANING PROCESS USES HOT TRIETHYLENE GLYCOL (TEG) TO REMOVE POLYESTER POLYMER FROM PARTS. POLYMER CONTAMINATED TEG IS CLEANED AND RECYCLED.

- WATER IS USED TO RINSE TEG FROM PARTS. TEG CONTAMINATED RINSE WATER IS SHIPPED OFF SITE FOR TREATMENT.

- TRICHLOROETHANE IS USED FOLLOWING HOT TEG PROCESS AS A FINAL DRYING AGENT FOR THE SPINNERETTES.

12/14/90 DEE MTG.

KENTEC SITE BACKGROUND

- BEGAN OPERATION IN 1969. PARTS CLEANING FACILITY UNDER DEDICATED CONTRACT TO DU PONT.

- ORIGINALLY OWNED AND OPERATED BY JAMES ENTERPRISES, INC.

- TEG RINSE WATER (1-2% TEG) ORIGINALLY DISCHARGED TO ROAD DRAINAGE IN FRONT OF PLANT.

- IN 1982, INSTALLED PERMITTED PACKAGE TREATMENT PLANT FOR TEG RINSE WATER DISCHARGING TO AN ON-SITE DRAIN FIELD.

- IN 1985, DU PONT PURCHASED ENTIRE FACILITY AND DETERMINED PACKAGE TREATMENT PLANT WAS UNSATISFACTORY FOR TEG TREATMENT. WITH CONCURRENCE OF DEM, SHUT DOWN PACKAGE TREATMENT PLANT. DEM ISSUED A "PUMP AND HAUL" PERMIT FOR TEG RINSE WATER.

- IN 1985, DU PONT DISCONTINUED CONTRACT WITH JAMES ENTERPRISES AND ENTERED NEW CONTRACT WITH KSI.

- IN JANUARY, 1987, INITIATED VOLUNTARY GROUNDWATER STUDY, COMMUNICATED TO DEM.

- IN APRIL, 1987, SPILL OF TEG RINSE WATER TO FRONT OF PLANT. CLEANUP INCLUDED SOIL AND WATER REMOVAL.

- IN LATE 1987, REVIEWED PHASE I FINDINGS WITH WASHINGTON REGIONAL OFFICE.

- IN 1988, DU PONT CONSOLIDATED PARTS CLEANING FOR ITS CAPE FEAR SITE TO KENTEC SITE.

- IN LATE 1988, PHASE II FINDINGS REVIEWED IN RALEIGH WITH DEM.

- IN 1989, DU PONT PURCHASED ADDITIONAL PROPERTY (APPROXIMATELY 15 ACRES) AS IT BECAME AVAILABLE.

AUDIENCES

	PKG	RESP
• KENTEC NEIGHBORS	6, 8	HENDERSON/RHODES/AUSTIN
• KENTEC MANAGEMENT	1, 2	RHODES/AUSTIN
• KENTEC EMPLOYEES	3	AUSTIN/HALL
• SITE MANAGEMENT	1, 2, 7	HENDERSON
• SHEA GROUP	1, 2, 7	HENDERSON/GARRI
• SITE EMPLOYEES	2, 4	HENDERSON
• SITE STAFF, VACEK, KOONTZ, MALLISON	1, 2, 7	HENDERSON
• STATE REGULATORY OFFICIALS		
- ENVIRONMENTAL	6	HARGITT/HENDERSON
- HEALTH DEPARTMENT	5	HARGITT
~~PUBLIC HEALTH~~	~~5~~	
• BUSINESS COMMUNITY	6	HARGITT/FERGUSON
• LEGISLATORS	6	HARGITT/FERGUSON
• MEDIA	1	MALLISON
• COUNTY COMMISSIONERS - LENOIR COUNTY	6	HARGITT/FERGUSON
• CITY COUNCIL - KINSTON		
• CORPORATE MANAGEMENT	1, 5, 7	HENDERSON
• BUSINESS CENTERS	1, 7	HUNTON
• MARKETING	1, 7	
• OTHER SITES	1, 7	HARGITT (NC) HENDERSON (FIBERS)
~~KEY COMMUNICATORS (T~~		
~~CUSTOMERS~~		
• CONTRACTORS ON SITE	1	MCMAHON, PENN
• KERMIT SMITH (LOCAL CONTRACTOR)	5	HENDERSON

PKG - 1 = PRESS RELEASE
2 = KINSTON SITE INFO BULLETIN
3 = SITE INFO BULLETIN ON KENTEC LETTERHEAD
4 = VIDEO NEWS
5 = PHONE CALL
6 = MEETING
7 = MANAGEMENT TALKING POINTS
8 = Neighborhood Talking Points

OBJECTIVES

TODAY

1. UPDATE THE DEM STAFF ON THE CURRENT STATUS OF THE KENTEC SITE'S GROUNDWATER CONTAMINATION PROBLEM.

2. GAIN BASIC AGREEMENT ON A PATH FORWARD.

SITE

1. FURTHER DEFINE THE EXTENT OF THE PLUMES.

2. PURSUE CORRECTIVE ACTION.

NEIGHBORS AND EMPLOYEES

1. PROTECT THEIR SAFETY AND HEALTH.

2. PROTECT FROM NEGATIVE FINANCIAL IMPACT.

DIVISION OF ENVIRONMENTAL MANAGEMENT

November 27, 1990

MEMORANDUM

TO: Jim Mulligan

FROM: Willie Hardison WH

SUBJECT: Dupont-Kentec Site
Kinston, North Carolina - Lenoir County

On November 26, 1990, Mr. R. J. "Dick" Hargitt stopped by the Regional Office and gave an update on the investigation ongoing at Kentec (old James Enterprise Facility). Mr. Hargitt provided for our review, current information pertaining to the above subject. He also gave us copies of two bulletins that Dupont plans to issue to company employees and the media concerning the site. Those two bulletins along with a partial summary of the investigation are enclosed for your information.

WH/awh

Attachments

INFORMATION BULLETIN

Former communications have discussed our investigation at the Kentec parts cleaning facility to determine whether past disposal practices have impacted groundwater quality. Trace amounts of contamination have been found, primarily at shallow depths of about 12 feet, and we will implement a remediation plan to correct this situation. Water at this level is not used for drinking water in this area and no traces of contamination have been found in the Neuse River.

The source of the contamination is the triethylene glycol (TEG) and 1,1,1-trichloroethane used in the cleaning process. The only sign of contamination below the 12 foot level was a trace amount of 1,4-Dioxane found at the base of a 100-feet abandoned site well with an apparent faulty casing. This well will be closed permanently to prevent any recurrence. Other similar wells in this vicinity have shown no contamination but additional testing will be conducted.

1,4-Dioxane is formed when glycols are heated during the cleaning process. It is commonly used as a solvent for paints, lacquers, and varnishes; in paint and varnish removers; and in cosmetics and deodorants. 1,4-Dioxane should not be confused with Dioxin. The only similarity between the two compounds is their common names sound alike.

We are working with the N. C. Division of Environmental Management Groundwater Section to devise a remediation plan. Meanwhile we are doing everything possible to assure the source of contamination has been eliminated by resealing all concrete pads and dikes and moving all tanks and piping above ground. As a safety measure, Du Pont will provide, while the remediation is in progress, connections to the county water system for the neighbors currently using well water. This will assure that everyone's water is safe and also that other potentially faulty well casings do not allow contamination to drift down into the deeper groundwaters.

Since Du Pont purchased the facility and Kentec become the contractor, programs have been completed to deal with odors, noise, truck traffic and the general facility appearance.

R-12003-K

DUPONT
REG U.S. PAT. & TM. OFF.
ESTABLISHED 1802
E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
KINSTON PLANT
KINSTON, NORTH CAROLINA 28501

TEXTILE FIBERS DEPARTMENT

Contact: Tom Mallison
522-6002

FOR IMMEDIATE RELEASE

The Kinston Du Pont Site announced plans for the groundwater remediation phase of its environmental improvement program at its Lenior County Kentec parts cleaning facility.

When Du Pont purchased the facility and changed contractors several years ago, a voluntary program was initiated to assure Kentec satisfied neighborhood expectations and environmental requirements. Programs have been completed to deal with odors, noise, truck traffic and appearance.

Groundwater contaminants have been found at several places on the site at depths of around 12 feet. The source of the contamination is material used in the cleaning process. Water at this level is not used for drinking water in this area and no traces of the contamination have been found in the Neuse River.

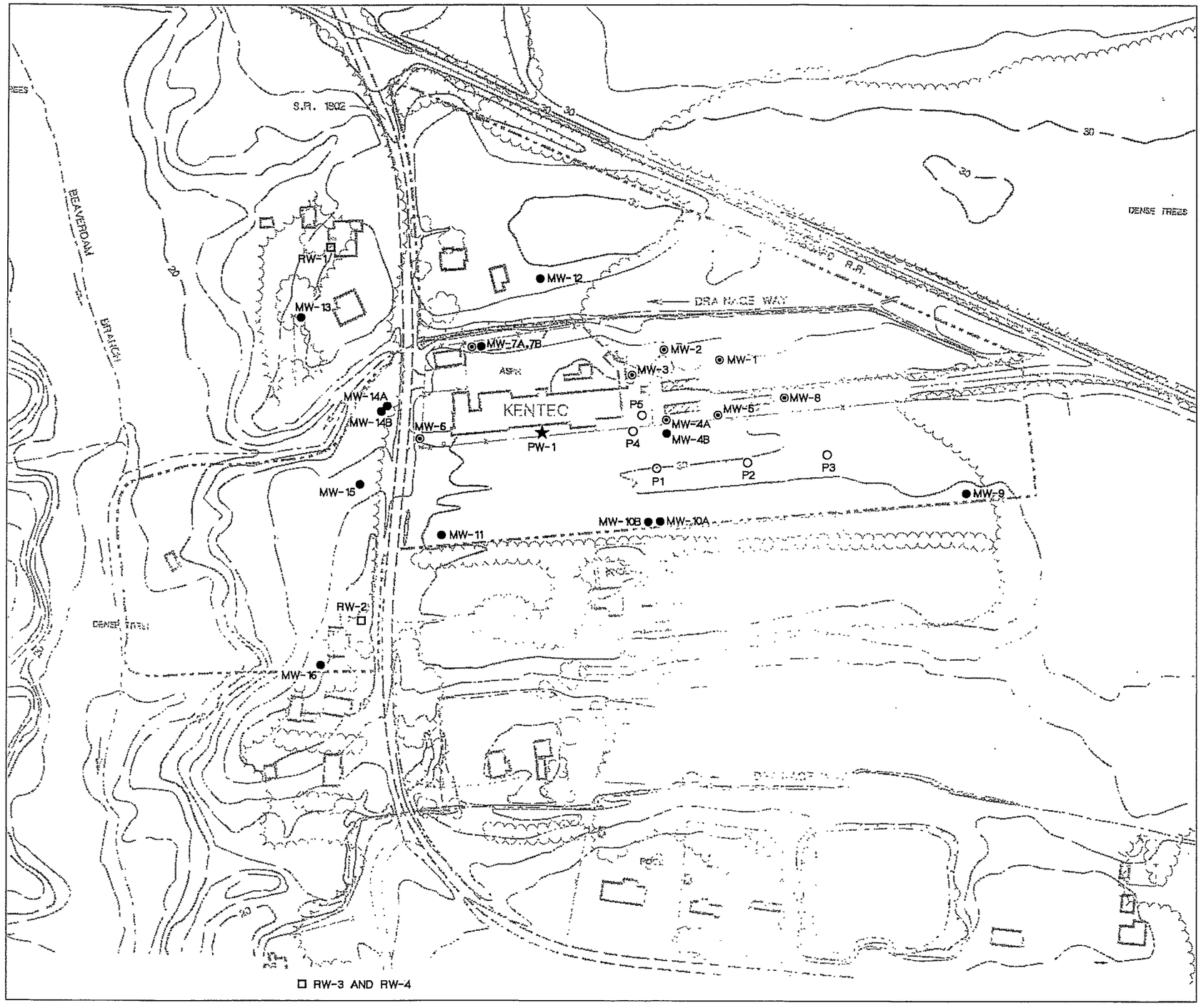
The only sign of contamination below the 12 feet level was a trace amount of 1,4-Dioxane found at the base of a 100-feet abandoned site well with an apparent faulty well casing. This well will be closed permanently to prevent any recurrence. Other similar wells in this vicinity have shown no contamination but additional testing will be performed.

1,4-Dioxane is formed when glycols are heated during the cleaning process. It is commonly used as a solvent for paints, lacquers, and varnishes; in paint and varnish removers; and in cosmetics and deodorants. 1,4-Dioxane should not be confused with Dioxin. The only similarity between the two compounds is their common names sound alike.

Du Pont officials are working with the North Carolina Division of Environmental Management Groundwater Section to devise a remediation plan.

"Du Pont will continue this groundwater investigation until the impact of contamination is fully understood and resolved," said Site Environmental Manager Jerry Henderson.

######



LEGEND

- ◉ PHASE 1 AND 2 MONITORING WELL
- ● PHASE 3 MONITORING WELL
- ○ PIEZOMETERS
- □ RESIDENTIAL WELL
- ★ PRODUCTION WELL (NOT IN USE)

NOTE: BASE MAP COMPILED FROM AERIAL PHOTOGRAPHY FLOWN ON 2/10/89.

0 100 200 300

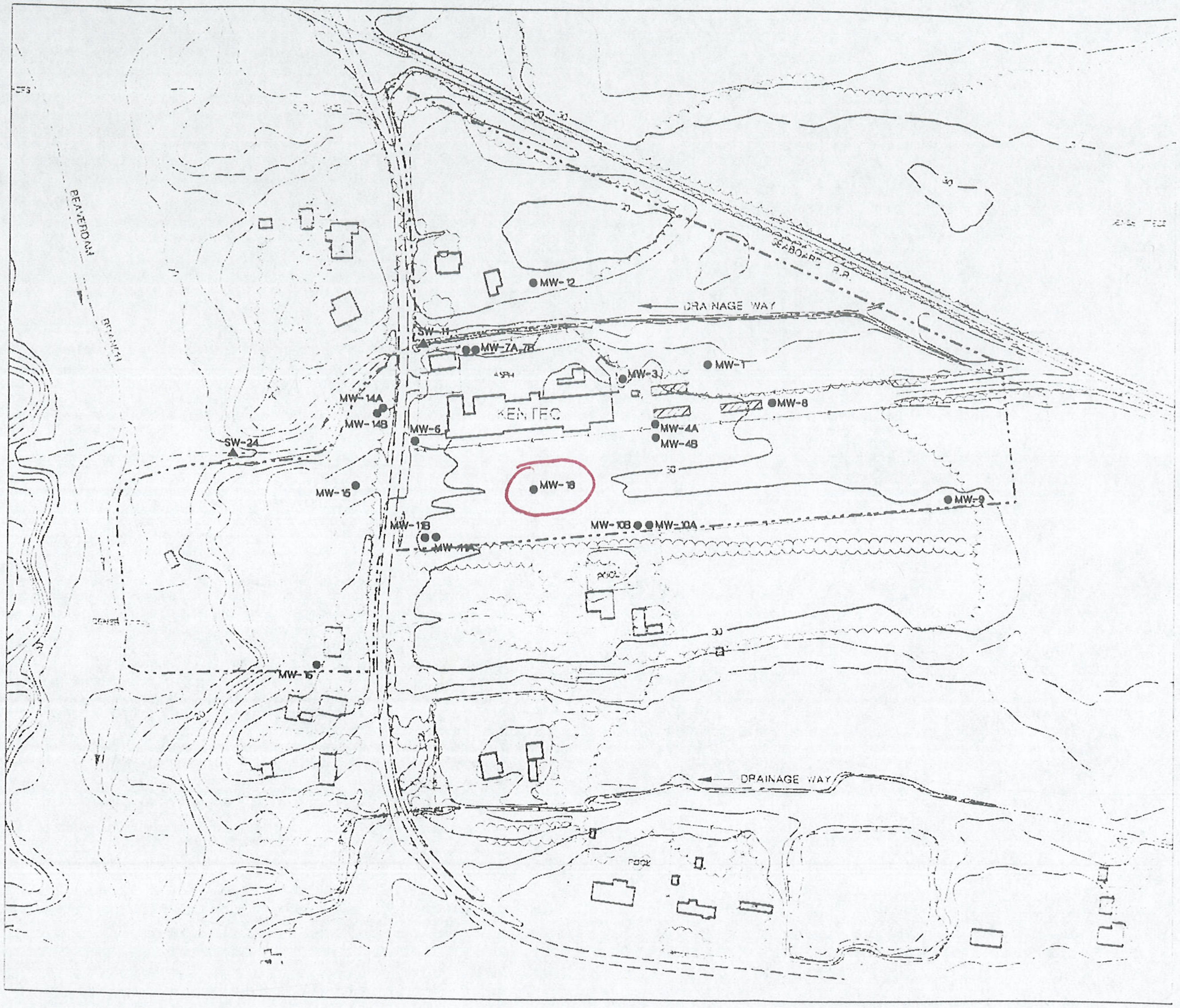
SCALE: 1"=200'

Figure 1-3

GROUNDWATER MONITORING SYSTEM
Du Pont Kentec Facility

CH2M HILL

2396fc03.dgn 28-Mar-1991



LEGEND

● MONITORING WELL
'A'- MONITORING WELLS ARE IN THE SHALLOW AQUIFER
'B'- MONITORING WELLS ARE IN THE PEEDEE AQUIFER

▲ SURFACE WATER MONITORING POINT

NOTE: BASE MAP COMPILED FROM AERIAL PHOTOGRAPHY FLOWN ON 2/10/89.

0 100 200 300

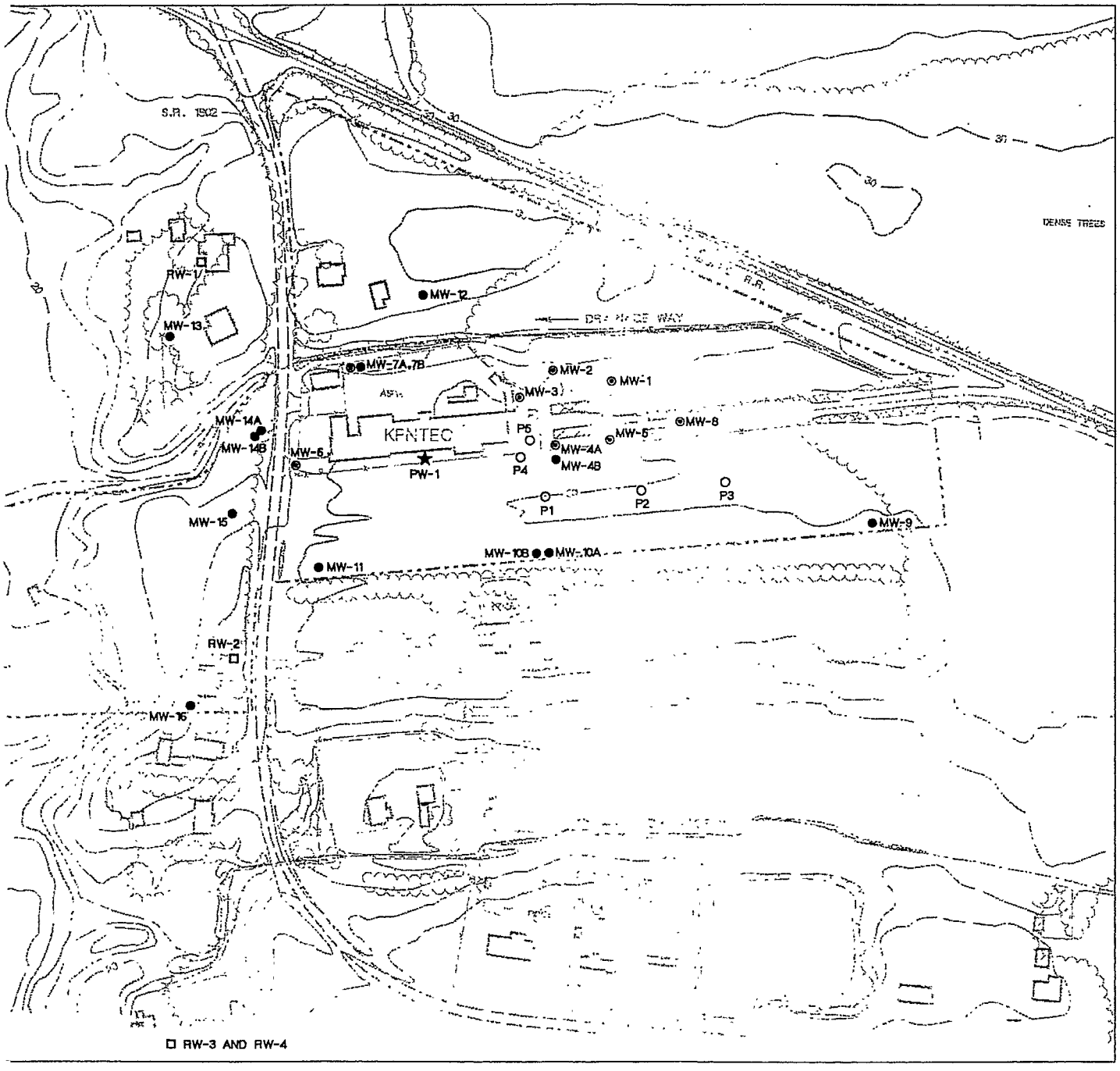
SCALE: 1"=200'

Figure 5-1

COLLECTION TRENCH MONITORING SYSTEM
Du Pont Kentec Facility

CH2M HILL

Z388f057.dgn 5-Jul-1991 15:18:37



N

LEGEND

- ◉ PHASE 1 AND 2 MONITORING WELL
- ● PHASE 3 MONITORING WELL
- ○ PIEZOMETERS
- □ RESIDENTIAL WELL
- ★ PRODUCTION WELL (NOT IN USE)

NOTE: BASE MAP COMPILED FROM AERIAL PHOTOGRAPHY FLOWN ON 2/10/89.

0 100 200 300

SCALE: 1"=200'

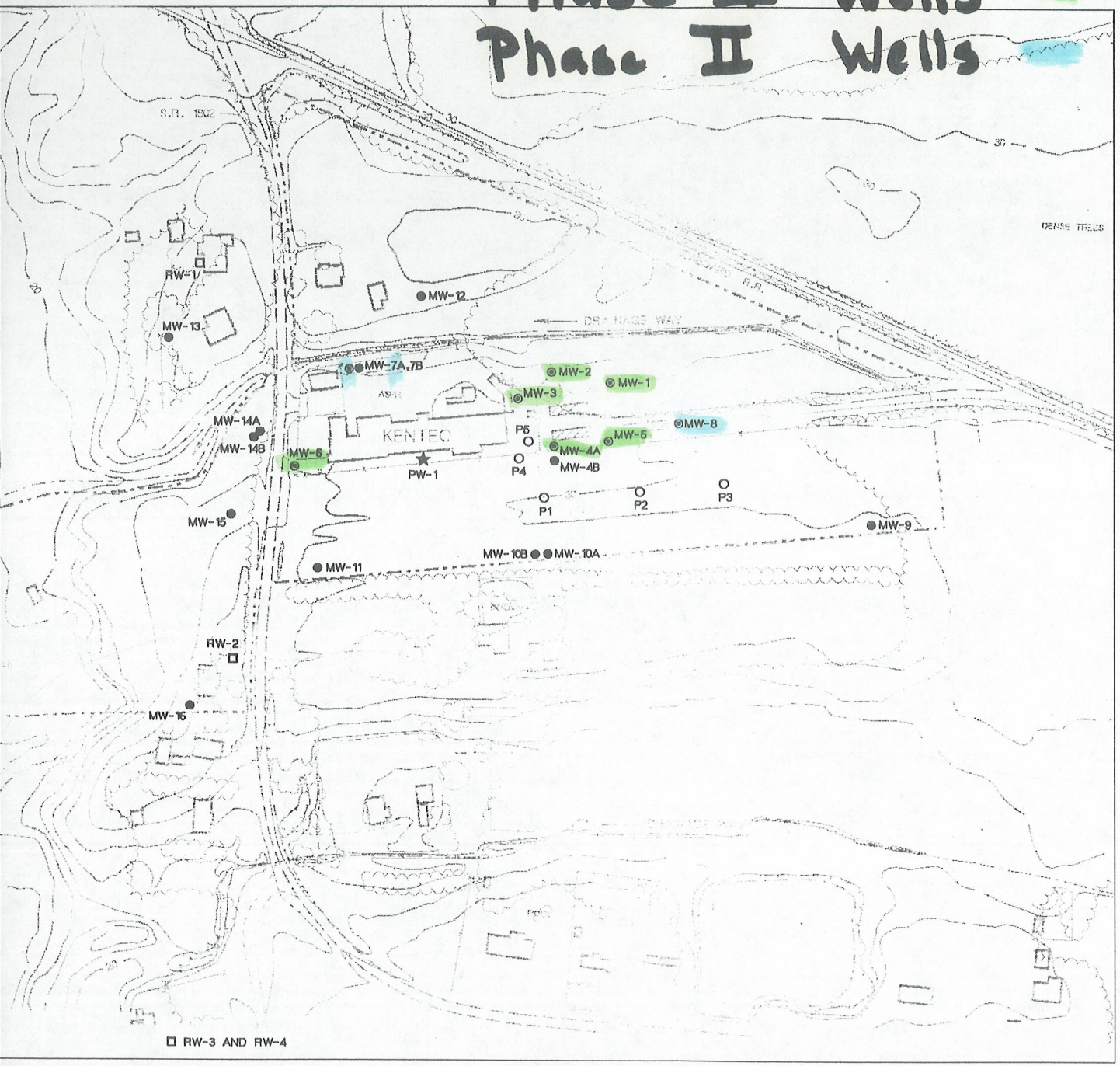
Figure 1-3

GROUNDWATER MONITORING SYSTEM
Du Pont Kentec Facility

CH2MHILL

Phase I Wells

Phase II Wells



N

LEGEND

- PHASE 1 AND 2 MONITORING WELL
- PHASE 3 MONITORING WELL
- PIEZOMETERS
- RESIDENTIAL WELL
- PRODUCTION WELL (NOT IN USE)

NOTE: BASE MAP COMPILED FROM AERIAL PHOTOGRAPHY FLOWN ON 2/10/89.

0 100 200 300

SCALE: 1"=200'

Figure 1-3

GROUNDWATER MONITORING SYSTEM

Du Pont Kentec Facility

CH2MHILL

file

DIVISION OF ENVIRONMENTAL MANAGEMENT
Groundwater Section

January 12, 1988

Mr. Jerry D. Henderson
E.I. DuPont De Nemours and Company, Inc.
Post Office Box 800
Kinston, North Carolina 28501

RE: Groundwater Assessment
Kentec-Dupont Facility
Kinston, North Carolina

Dear Mr. Henderson:

On January 5, 1988, a meeting was conducted in the Washington Regional Office among members of your staff, and the Division of Environmental Management to discuss issues that relate to the above referenced subject.

It was suggested that our office follow up by providing you with a letter to document and summarize the findings and conclusions resulting from the meeting. This letter will serve as that documentation and the following points will reflect the Groundwater Section's request:

- An upgradient background monitor well be constructed to determine ambient groundwater conditions at the site.

- A groundwater flow map accurately reflecting subsurface flow conditions at the site be prepared.

- Additional groundwater quality sampling efforts continue to expand present data base.

- Information be provided to demonstrate that the vertical extent of the contaminant plume is properly defined and whether a shallow confining layer is restricting any downward migration of contaminants.

- The hydraulic conductivity(k) of the aquifer be determined by acceptable methods such as slug test, pump test, etc., so that a realistic rate of movement may be estimated.

- Information be provided to delineate the horizontal extents of the contaminant plume and to assure that the plume remains within the confines of the site.

- Locate and identify all water supply wells within 1500' downgradient of the site.

- Laboratory analysis that you provided reveal that TOC and COD levels are excessively high. Additional information to explain these occurrences should be provided.

- It is recommended that base-neutral and acid extractable techniques be employed to discriminate and characterize the organic constituents encountered by the TOC analysis.

If any of the above points warrant further explanation or discussion, please feel free to contact me at your convenience.

I appreciate your display of mutual willingness and cooperation. I welcome the opportunity to work with you and your staff on this assessment.

Sincerely,

Rudy Smithwick, P.G.
Regional Hydrogeologist

RS/ekw

cc: Jim Mulligan

Rudy You should promptly respond to this
RG

E. I. DU PONT DE NEMOURS & CO., INC.
KINSTON PLANT
KINSTON, NORTH CAROLINA 28502-0800

Textile Fibers Department

August 11, 1987

Mr. A. R. Hodge
Water Quality Section, DEM
N. C. Dept. of NRCD
P. O. Box 1507
Washington, N. C. 27889

Dear Mr. Hodge:

GROUNDWATER ASSESSMENT AT KENTEC

For some time we have discussed a concern over possible groundwater contamination resulting from past disposal practices at the Kentec parts cleaning facility. This concern was based primarily on COD data collected from one of the monitoring wells on the site. In response to this concern, a major groundwater study was initiated which looked not only at this suspect well, but at the entire site.

This study is essentially complete now and we feel no groundwater contamination requiring remediation is present. Also, since rinse water is no longer disposed of on-site, the potential for future groundwater contamination has been eliminated.

We would appreciate your concurrence that remediation is not required, along with a written response indicating no objections to using this property for normal industrial purposes.

Attached is a summary which provides the key details of this study. Also attached is an "executive summary" (Attachment 1) by the contractor, CH2M Hill, which provides an overview of the study. I will be glad to discuss this with you at your convenience.

Sincerely,

Jerry D. Henderson
Environmental Coordinator

JDH:pwo
EC5.40
Attachments

BACKGROUND

One of the processes at this facility generates rinse water containing trace amounts of triethylene glycol (TEG). Various on-site treatment techniques proved unsuccessful in disposing of this rinse water, so off-site disposal was initiated in February, 1986. On-site disposal practices had raised questions from regulatory officials about possible groundwater contamination. A previously installed monitoring system was inadequate to define the hydrogeologic environment beneath the disposal area.

PLAN OF ACTION

In early March, 1987 a decision was made to take all steps necessary to assure the Kentec facility met the expectations of the community and the regulatory officials. The strategy was divided into four phases:

1. Inform the community and regulatory officials of a plan to resolve their concerns via a groundwater survey and commitment to respond to any problems uncovered.

2. Engage a competent consulting firm to conduct the groundwater study.

3. Share the results of the survey with regulatory officials and develop an appropriate response.

4. Share the response plan with the community.

ACTION ACTIVITIES/LEARNINGS

The consulting firm of CH2M Hill of Reston, Va. was engaged to develop and implement a groundwater assessment program. The plan resulted in the installation of six shallow monitoring wells by ATEC Associates of Raleigh.

DRILLING/INSTALLATION OF MONITORING WELLS

Drilling and installation of six shallow monitoring wells were performed between April 13 and April 17, 1987. Each 10-inch borehole was drilled using hollow stem augers to a depth of approximately 15 feet below land surface. During the drilling of each of the six boreholes, soil samples were obtained from each borehole using an 18-inch split spoon sampler. Two-inch diameter PVC monitoring well screens and pipe were installed in each borehole. A sand pack was placed in the annulus between the borehole and well screen to a depth approximately 1 foot above the top of the well screen. A one to two-foot bentonite seal was placed on top of the sand pack to provide protection from surface runoff migrating downward along the well pipe. The remainder of the annulus was grouted to the surface with cement. A protective locking steel casing was placed over each well. At MW3, the well and protective steel casing were finished below ground surface with manhole cover on top of the well. All drilling equipment was steam-cleaned between boreholes. Each well was developed by surging and pumping with a suction pump to allow better water flow to the well.

One soil sample was collected from each borehole in the saturated sand zone with the split spoon sampler for chemical analysis. Each split spoon sampler was steam-cleaned prior to collecting soil for chemical analysis. At MW1, MW2, MW3, and MW6, the depth of the soil sample for chemical analysis was between 3.5 feet and 5 feet. At MW4 and MW5, the depth of the soil sample for chemical analysis was between 8.5 feet and 10 feet. Barrow Surveying and Mapping surveyed elevations for each monitoring well on April 23, 1987.

GROUNDWATER AND SURFACE WATER SAMPLING

D. Dronfield of CH2M Hill and J. Bailey of Du Pont-Kinston collected groundwater and surface water samples on May 14 and May 15, 1987. Water level measurements were made in the afternoon of May 14, 1987, in each of the monitoring wells. MW1, MW2, and MW5 were sampled on May 14, 1987. MW3, MW4, MW6, and the three surface water samples were collected on May 15, 1987.

Each of the wells was purged with a positive-displacement bladder pump prior to sampling until pH, Eh, conductivity, and temperature of the groundwater had stabilized for three well volumes. Groundwater samples were then collected with the pump into sample jars provided by Du Pont. All metals samples were filtered with a 0.45 micron filter prior to preservation in the field. All samples were preserved in the field as specified by the lab. All sampling equipment was cleaned with 2 gallons of 10 percent acetone rinse. At the end of each day, the samples were taken by J. Bailey to Law and Company Laboratory in Wilmington, North Carolina. Surface water samples were collected from the creeks directly into sample jars.

HYDROGEOLOGY

The topography at the site is relatively flat at an elevation of approximately 30 feet above mean sea level. Topography slopes downward toward the creek northwest of the site and more steeply across SR1802 toward Beaverdam Branch southwest of the site.

The surficial geology of the Kentec site is described from boring log data from the monitoring well construction. The uppermost stratigraphic unit consists of a silty sand to coarse sand with gravel to a depth of between 5 and 10 feet below ground surface. This zone is thickest at MW4 and MW5. Beneath this sand zone is a clayey slit with some sandy silt least 5 to 10 feet thick at each of the boreholes.

Hydraulic conductivity is a measure of the capacity of a material to transmit water. Hydraulic conductivities were not measured directly at the site, but can be estimated from published literature based on the type of soil present. The uppermost sand zone hydraulic conductivity would be approximately 10^{-3} to 10^{-4} feet/second. The clayey silt hydraulic conductivity would be estimated to be three orders of magnitude less than the sand or approximately 10^{-6} to 10^{-7} feet/second.

2. No way!

Water levels were measured in all six monitoring wells on May 14, 1987. Water level measurements indicate that the direction of horizontal groundwater flow in the surficial aquifer within the sand zone is generally toward the southwest and SR1802. However, some localized flow may be toward the creek northwest of the site. Flow may be radially away from the drain field and/or septic field when they are active as a result of mounding of water under the fields. The discharge area for the surficial aquifer at the site is believed to be the ditch along SR1802, marsh, and Beaverdam Branch.

The silt zone may be acting as an "impermeable" layer causing the surficial aquifer in the sand zone to be perched on top of the silt. However, not enough data are available to verify this or to determine where all discharge points for the perched zone are located. The hydraulic conductivity of the silt zone is believed to be low enough to inhibit significant flow vertically into deeper water bearing zones.

The average linear velocity of groundwater is a measure of the average rate of movement of particle of water parallel to the flow direction. The rate of movement of groundwater in the surficial sand aquifer at Kentec is estimated to range between 230 feet and 2,300 feet per year.

ANALYTICAL PLAN

Some chemical analytical tests were performed by the CH2M Hill Laboratory (volatile organic compounds) and others by Law and Company, Wilmington, N. C. Groundwater and surface water were analyzed for all known components from the Kentec process and also for any probable degradation products. Specific known components are TEG, titanium, antimony, and manganese. In this survey a more extensive protocol was indicated so iron, chromium, cobalt, ammonia, nitrate, phosphors, and volatile organic compounds were included. Fecal coliform was also included to verify the performance of the septic tank drain field.

ANALYTICAL RESULTS/INTERPRETATION

1. There appears to be no groundwater contamination requiring remediation resulting from Kentec disposal practices.

   - TEG was detected only at the site of a 4/8/87 spill.
   - Manganese was detected but at essentially naturally occurring levels.
   - Only one volatile organic compound of consequence was detected. 1,4-Dioxane was detected at less than 2 ppm in the drain field which was used for rinse water disposed until February 1986.

2. Reddish deposits in local ditches indicated the presence of iron. This was confirmed at varying levels that appear consistent with documented levels in coastal plains sand aquifers. (Range detected was 8 to 200 ppm.) Iron is not part of the Kentec process. No abnormal amounts of other "trace" metals were detected.

3. Odor formers detected were acetic acid and butyric acid. Acetic acid could come from the Kentec process or be naturally occurring. Butyric acid could not come from the Kentec process but is naturally occurring as a decomposition product of carbohydrates. These constitute a portion of the natural "swampy" odor.

4. High levels of total and fecal coliform was detected in several locations upstream and downstream of the Kentec facility. Source definition has been hampered by seasonal dryness of some of the surface drainages.

PATH FORWARD

1. Sample and analyze selected monitoring wells and selected surface water locations quarterly for the next year per Attachment 2.

2. Initiate appropriate action based on sample results and discussion with regulatory agencies.

3. Since none of the monitoring wells are totally free of contamination, install a background monitoring well far enough upgradient to assure an accurate assessment of ambient water quality.

JDHenderson:pwo
EC5.40
8/11/87

GROUNDWATER ASSESSMENT SUMMARY

KENTEC FACILITY

In response to a request from the Du Pont Kinston Dacron® Plant CH2M HILL planned and conducted a ground water assessment at the DuPont-Kentec facility, formerly James Enterprises, Grifton, North Carolina. This request followed the observation of high COD values in a shallow groundwater monitoring well adjacent to a drainfield used for the disposal of rinse water containing triethylene glycol (TEG). Two other, deeper monitoring wells installed at the same time showed lower COD levels.

TEG is extremely soluble in water and that is expected to behave as a surfactant or wetting agent. As manufactured by Dow Chemical TEG is 99 percent with the one percent impurity primarily diethylene glycol and tetraethylene glycol. It does not degrade readily and appears very stable over time. Dow recommends that TOC analysis is a more sensitive indicator of TEG than COD even though neither is specific to TEG. The monitoring well locations and depths were designed to sample the shallow water table aquifer surrounding the drainfield and to provide information on shallow ground water direction and rate of flow. Six shallow borings were drilled to a depth of about 15 feet below land surface.

Two-inch diameter PVC monitoring well screen and riser were installed in each borehole. A sand pack was placed in the annulus to one foot above the screen. One to two feet of bentonite was placed on top of the sand pack as a seal. Wells were then grouted to the surface and a locking protective casing installed. All drilling and soil sampling equipment was steam-cleaned between boreholes. Each well was developed by surging and pumping with a suction pump.

One soil sample was collected from each well using a split spoon-sampler for analysis of selected chemical parameters.

Each soil sample was collected from the saturated sand zone. Wells MW-1, MW-2, MW-3, and MW-6 were sampled between 3.5 and 5 feet; Wells MW-4 and MW-5 between 8.5 and 10 feet. No sampling in saturated zone

Groundwater and surface water samples were collected on May 14-15, 1987. Water level measurements were made in the afternoon of May 14, 1987, in each of the monitoring wells.

All six monitoring wells were purged with a positive-displacement bladder pump prior to sampling until pH, EH, conductivity, and temperature of the groundwater had stabilized for three well volumes. Groundwater samples were

then collected from the wells by the pump directly into sample jars provided by the analytical laboratory. Dissolved metals samples were filtered with a 0.45 micron filter prior to preservation in the field. All sampling equipment was cleaned with 2 gallons of 10 percent acetone rinse. At the end of each day, the samples were hand delivered to Law and Company Laboratory in Wilmington, North Carolina. Surface water samples were collected from the creeks directly into sample jars.

HYDROGEOLOGY

The topography at the site is relatively flat at an elevation of approximately 30 feet above mean sea level. Topography slopes downward toward the ditch northwest of the site and more steeply across SR1802 toward Beaverdam Branch southwest of the site.

The surficial geology of the Kentec site is described from boring log data from the monitoring well construction. The uppermost stratigraphic unit consists of a silty sand to coarse sand with gravel to a depth of between 5 and 10 feet below ground surface. This zone is thickest at MW-4 and MW-5. Beneath this sand zone is a clayey silt with some sandy silt at least 5 to 10 feet thick at each of the boreholes.

Hydraulic conductivity at the site, is estimated from published literature based on the type of soil present. The uppermost sand zone hydraulic conductivity is approximately 10^{-3} to 10^{-4} feet/second. The clayey silt hydraulic conductivity is estimated to be three orders of magnitude less than the sand or approximately 10^{-6} to 10^{-7} feet/second.

Water level measurements indicate that the direction of the horizontal component of groundwater flow in the surficial aquifer within the sand zone is generally toward the southwest and SR1802. However, some localized flow may be toward the ditch northwest of the site. Flow may have been radially away from the drainfield when it was active as a result of mounding of water under the field. The discharge area for the surficial aquifer at the site is believed to be the ditch along SR1802, marsh, and Beaverdam Branch. The rate of movement of groundwater in the surficial sand zone at Kentec is estimated to range between 230 feet and 2,300 feet per year.

The silt zone may be acting as an "impermeable" layer causing the surficial aquifer in the sand zone to be perched on top of the silt. However, not enough data are available to verify this or to determine where all discharge points

(8)

for the perched zone are located. The hydraulic conductivity of the silt zone is believed to be low enough to inhibit significant flow vertically into deeper water bearing zones.

Some chemical analyses were performed by Law and Company, Wilmington, North Carolina. Volatile organic compounds were analyzed by the CH2M HILL laboratory in Montgomery, Alabama. Groundwater and surface water were analyzed for components known to be contained in the Kentec process and also for selected probable degradation products. Specific known components are TEG, titanium, antimony, and manganese. Also analyzed were iron, chromium, cobalt, ammonia, nitrate, phosphorous, and volatile organic compounds. Total and fecal coliform was also included to verify the performance of the septic system drainfield.

No TEG contamination greater than the 10 ppm detection limit was found in soil or groundwater near the drainfield (MW1-MW5). Other constituents of the waste stream--1,4 dioxane and manganese--were observed in groundwater suggesting minor residual contamination. Contaminants found in the groundwater from MW-6 are believed to be due to a nearby surface spill which occurred just prior to well installation.

Fecal coliform was found at high levels at four surface water sample locations. No fecal coliform were found in groundwater samples. Discoloration of ditch sediment to the southwest of the Kentec facility is attributed to the oxidation of ferrous iron naturally presented in Coastal Plain sand aquifers.

It is believed that residual contamination from the rinse-water disposal drainfield is minor and is diminished with time. The source of the contamination ceased in February 1986 with the discontinuation of drainfield use. However, minor residual contaminants may be migrating slowly through the shallow aquifer and above the low permeability silt layer. No significant contamination can be attributed to the new septic system drainfield. However, the source of the high fecal coliform counts at various location has not been identified. Discoloration in the soil is believed to be due to mobilization of naturally present iron under reducing conditions.

what is definition of significant?

NEED TO IDENTIFY

WDR260/004

ATTACHMENT 2

PROPOSED KENTEC SAMPLING PLAN

SAMPLE LOCATION	COD	TOC	MANGANESE	IRON	1-4, DIOXANE	TOTAL COLIFORM	FECAL COLIFORM
MW2	X	X	X	X	X		
MW3	X	X	X	X	X		
MW6	X	X	X	X	X		
SW7						X	X
SW11						X	X
SW12						X	X
SW19						X	X

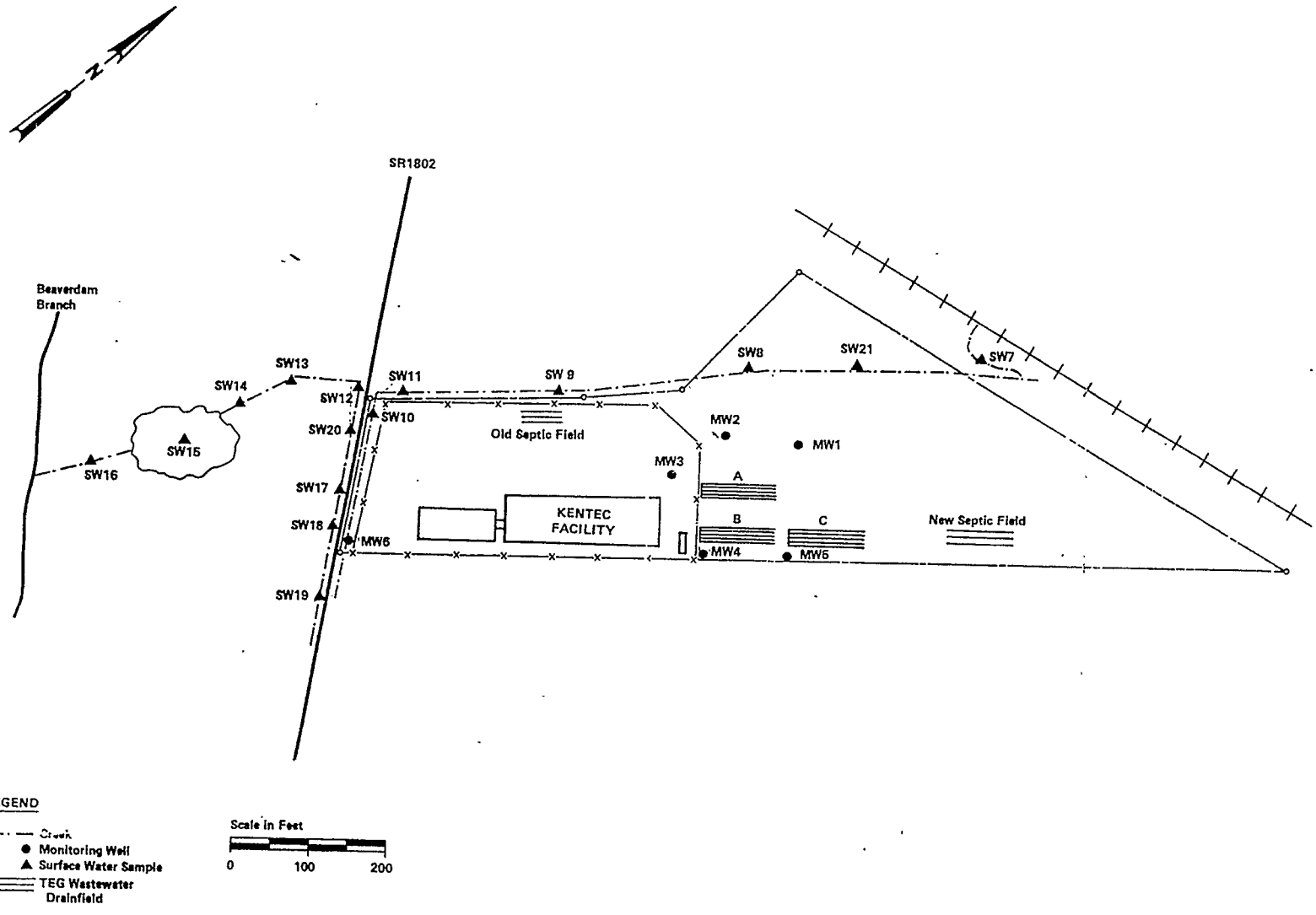
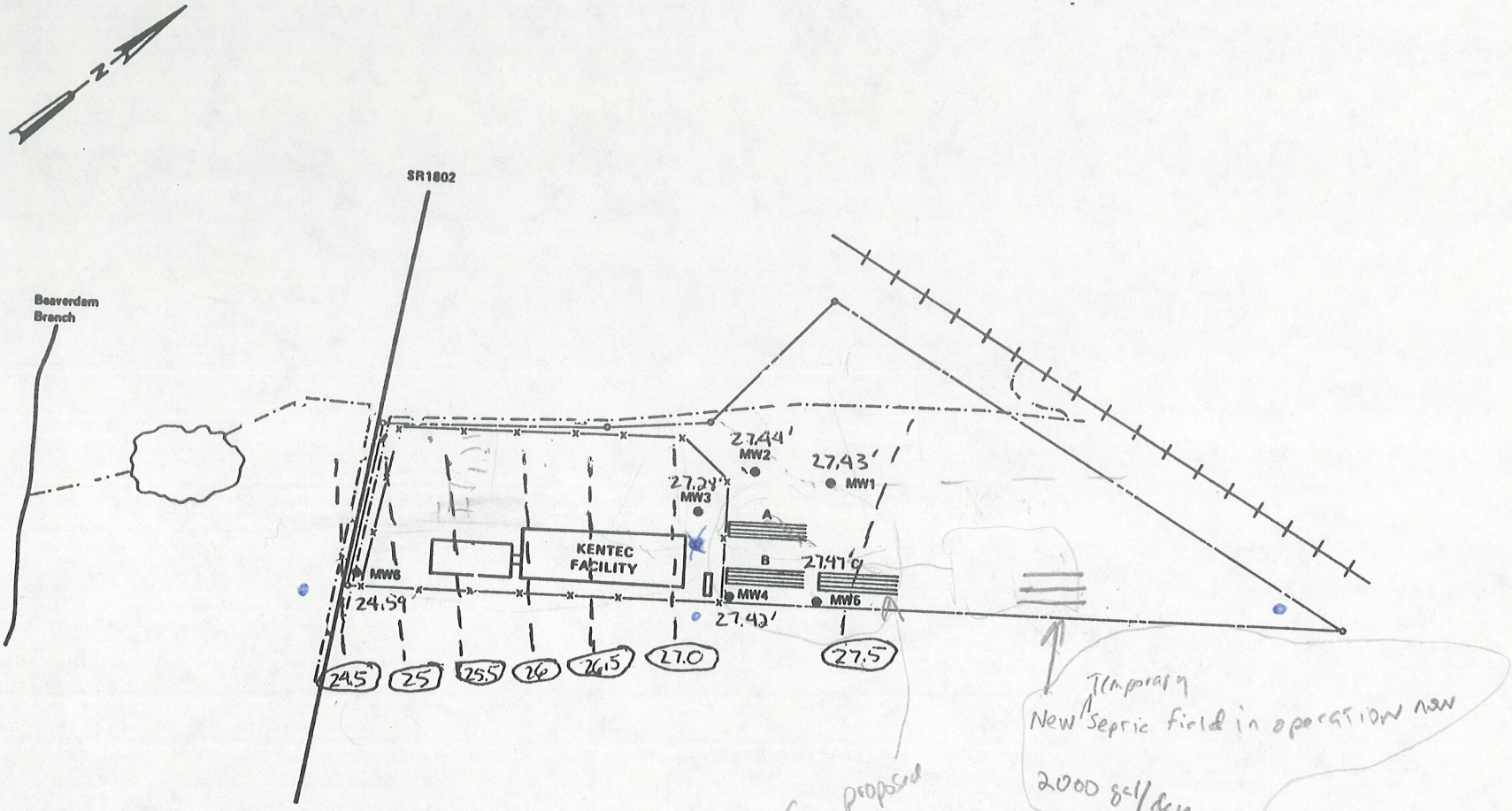


Figure 2
KENTEC SITE PLAN AND SAMPLING LOCATIONS

CH2MHILL



Potentiometric Map
May 14, 1987 Water Levels

CH2M HILL

1ST Report

Attachment 1 "Groundwater Assessment Summary"

- indicates COD levels are high
- indicates that each soil sample is collected from the saturated soil zone what about above saturated zone in vadose

- need analytic procedures describing sampling methods, cleansing, sample storage etc

High fecal counts observed in 4 wells

Need

- Need well construction details
- sampling procedural methods techniques
- subsurface boring logs
- data for determining GW flow
- potentiometric map
- analytical results correlated to wells
- information to adequately characterize site groundwater quality

copy Doug on letter to Kentec

NC Law 143. 215 . 666

page 2 "Hydrogeology"

K or hydraulic conductivity is estimated at 10^3 - 10^4 ft/sec (~~day~~) for sand units and 10^{-6} - 10^{-7} ft/sec (~~day~~) for clay

not realistic

10^{-1} silty sand

10^{2} med - coarse sand

10^{-3} clay sand silt

$10'$ average = 10 ft/day

gw flow estimated at 230 - 2300 ft/yr

*Too great of range must be better defined.

page 3 "Analytical Results / Interpretation"

- TEG detected 4/8/87 What concentration?
- MN detected What concentration?
- What volatile organic compounds detected?
- What concentration of 1,4 Dioxane?
- Where would acetic acid come from (page 4)

Groundwater Assessment at Kentec

The GW assessment is lacking in several points. The first is that there is no borehole logs or soil descriptions other than a general statement identifying a sand unit "at a depth of between 5 and 10 feet below ground surface."

Then there is a reference to published hydraulic conductivities, so they state an approximate value of 10^{3} to 10^{4} feet/second for the upper sand layer. Then they assume the next stratigraphic layer, since it is a clayey silt, is "estimated to be three orders of

magnitude less or approximately 10^6 to 10^7 feet / second".

They state that water levels were were measured, but they don't provide them. From these water levels, they determined a general flow to the southwest, but qualify this by saying there could be localized flow to the northwest (toward a creek) and a radial flow from a mound under a drainfield.

The section on Hydrogeology is then topped off by a statement that the "linear velocity" is estimated

to range from 230 to 2300 feet per year!

The next section deals with the results of sampling. Rather than to bog us down with details like lab results, they lead off with a statement that there is no groundwater contamination requiring remediation resulting from Kentec disposal practices. As proof they offer:

TEG (triethylglycol) was detected only at the site of a 4-8-87 spill (near MW-6) and only one VOC was detected. 1,4 Di-oxane at <2ppm in the rinse water drainfield.

From this point, they lead us to their "Path Forward" and come up with a plan to monitor "selected" wells and surface water locations quarterly for a year.

After the year, they will initiate the appropriate action based on sampling results and discussion with regulatory agencies. Their last action is really catchy. It reads "3. Since none of the monitoring wells are totally free of contaminants, install a background monitoring well far enough upgradient

to assure an accurate assessment of ambient water quality". That statement is doubly interesting in the fact that it says all 6 wells have some contaminants in them and they don't really have a handle on what the ambient quality is.

Attachment 1 is an executive summary repeating in slightly more detail, but fewer words, the same information. Attachment 2 is the proposed parameters for the quarterly monitoring. Their selected wells are MW-2, MW-3,

and MW-6. If you look on the only map provided, you will see that MW-2 and MW-3 are southwest of the 3 old drain-fields and are probably good choices. MW-6 is at the southeast corner where we know (DEM) a spill of TEG occurred in April 1987. It would probably pay to monitor it for a year to watch the TEG concentration degrade or even drop.

I would like to add the following parameters to the proposed plan:

Total Dissolved Solids - TDS
Total Organic Halides - TOX
pH
Water Levels (prior to sampling)

I would like for DuPont to report the quarterly results to us within 30 days of the end of the quarter. I would also like to see all 6 monitor wells plus the proposed new upgradient well sampled rather than the "selected" three. I wish too, that a complete comprehensive assessment (like the one CH2M Hill probably gave to DuPont) including maps, flow diagrams, chemical testing results, water level data, etc.

would be submitted to us rather than a glorified executive summary.

NOTES

Kentec - Groundwater Assessment
TEG = triethylene glycol $C_6H_{14}O_4$
LD_{50} rats 21 g/Kg (21/1000)
increases pliability of plastics
miscible in water

Pg 1 Background
Fair summary of situation

Plan of Action
OK

Action Activities/Learnings
OK

Drilling/Installation of Monitor Wells

Check to see GW-1's are in.
WCP was issued
Where is analytic data?

Pg 2 Groundwater and Surface Water Sampling

Procedure appears to be OK

Hydrogeology

Where is borehole log data?

NOTES

Pg 3 Good, but where are water level measurements?

Range of "linear velocity" is to broad.

Analytical Plan

Good, but need results of QW sampling to provide list of what was sampled for.

Analytical Results / Interpretation

1. I dont buy their comment that there is "no groundwater contamination requiring remediation" when they report the presence of TEG and 1,4 Dioxane on site.

2. I agree that the surficial aquifer has a high iron content.

Pg 4 3. What levels of acetic acid and where was it found?

4. Coliform (total + fecal) was not found in GW.

NOTES

Pg 5 **Path Forward**

1. Agree with, but review parameters
2. Agree with.
3. Agree with.

Pg 6-8 Attachment 1 is executive summary from CH2M HILL. It restates most of pgs 1 thru 5 but with a little more clarity or detail.

Pg 9 Attachment 2 is their suggested monitoring scheme for quarterly sampling of wells MW 2, 3, +6 and 4 surface water sites. I would add:

Total Dissolved Solids (TDS)
pH
Total Organic Halides (TOX)
Water Levels (Prior to sampling)

State of North Carolina
Department of Natural Resources and Community Development
Northeastern Region
1424 Carolina Avenue, Washington, North Carolina 27889

James G. Martin, Governor
S. Thomas Rhodes, Secretary

Lorraine G. Shinn
Regional Manager

DIVISION OF ENVIRONMENTAL MANAGEMENT
September 18, 1987

Mr. Jerry D. Henderson, Environmental Consultant
E. I. DuPont De Nemours & Co., Inc.
P. O. Box 800
Kinston, North Carolina 28501

RE: Review of Groundwater Assessment at Kentec

Dear Mr. Henderson:

At your request I have reviewed the above referenced document which has been supplied to me through Alton Hodge of the Water Quality Section. It is my understanding through conversation with Mr. Hodge (and also with you) that this report was made available to me for the Groundwater Section to have an opportunity to review the assessment and subsequently provide an official section position.

In order to provide you with such a position, it will be necessary to provide the following information:

1. Information, maps, details, calculations, assumptions, etc. to adequately characterize site geology and also groundwater quality

2. Analytical results correlated to corresponding wells

3. Potentiometric map(s) and data for determining groundwater flow direction

4. Subsurface boring logs and/or descriptive logs defining subsurface stratigraphy

5. Information outlining sampling methods, techniques, and procedures

6. Well construction details

In addition to the above requested items, there are specific questions that I have generated through my review that may be answered best during our future meeting. You have indicated that your files contain considerably more data than the report reflects and quite possibly may answer some of those questions.

At your convenience, I suggest that we schedule a meeting to continue discussion of this issue. I look forward to hearing from you soon.

Sincerely,

Rudy A. Smithwick, P.G.
Regional Hydrogeologist

RAS:mja

file

State of North Carolina
Department of Natural Resources and Community Development
Northeastern Region
1424 Carolina Avenue, Washington, North Carolina 27889

James G. Martin, Governor
S. Thomas Rhodes, Secretary

DIVISION OF ENVIRONMENTAL MANAGEMENT

Lorraine G. Shinn
Regional Manager

October 29, 1987

Mr. Jerry D. Henderson
E. I. DuPont De Nemours & Co., Inc.
P. O. Box 800
Kinston, NC 28501

RE: Groundwater Assessment
Kentec-DuPont Facility
Kinston, NC

Dear Mr. Henderson:

The section has completed its review of the above referenced assessment and offers the following comments:

Under the North Carolina Administrative Code, Environmental Management Division, Subchapter 2L, "Classifications and Water Quality Standards Applicable to Groundwaters of North Carolina", Section .0100 - .0300 states that "no person shall cause the concentration of any toxic or deleterious substance to exceed that specified in Rule .0202 of this Subchapter.

Based on the information that you supplied and as indicated in the analytical results included, it has been determined that a number of identified compounds exceed those concentrations defined in .0202 "Underground Water Quality Standards"; therefore, we have concluded that contravention of groundwater quality standards has occurred and that the following actions should be employed:

1. Identify and remove any known contaminant source that may be contributing to the degradation of groundwater quality.

2. Submit a remedial action plan identifying the magnitude and extent of horizontal and vertical contamination. The plan should define the limits and properties of the contaminant plume and include a subsequent proposal to remediate and restore the regional groundwaters that have been impacted. An outline for plan development is enclosed for your benefit.

I am aware that you are anxious to expedite permit approval for a sewage disposal system to be constructed within the study area. I would not encourage you to pursue those plans until the above issues have been resolved due to the possibility of the system impacting future monitoring results.

A meeting among all concerned regulatory agencies and your company may be beneficial in order to table all issues at hand. I will arrange to meet with you at your convenience should you decide to schedule such a meeting.

If you have any questions or if I can be of assistance, please feel free to call.

Sincerely,

Rudy A. Smithwick

Rudy A. Smithwick, P.G.
Regional Hydrogeologist

RAS:mja

Enclosure

cc: Jim Mulligan
Alton Hodge

STATE OF NORTH CAROLINA

COUNTY OF WAKE LENOIR

BEFORE THE NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

IN THE MATTER OF THE VIOLATION OF

15 NCAC 2L . GROUND WATER Classifications & STANDARDS, Aug 1989

SPECIAL ORDER BY CONSENT EMC GW #

This SPECIAL ORDER BY CONSENT (SOC) is made and entered into pursuant to North Carolina Administrative Code, Title 15 Subchpt 2L, Aug 1989 by and between E.I. Dupont de Nemours & Co., Inc, hereinafter referred to as the COMPANY, and the Environmental Management Commission, an agency of the State of North Carolina, hereinafter known as the COMMISSION.

WITNESSETH:

I. The COMPANY and the COMMISSION do hereby stipulate as follows:

A. The company maintains a facility at the Kinston Dacron Plant PO Box 800 Kinston NC 28501 and is in the business of manufacturing dacron polyester fibers and resins.

B. This matter concerns a source of groundwater Contamination originating on a parcel of property located at the above address in Lenoir County on Hwy 11 approx 8 miles North of Kinston, North Carolina. This matter has been designated as Incident No. by the Groundwater Section of the Division of Environmental Management (DEM) of the Department of Natural Resources and Community Development (NRCD).

The source of the contamination is a result of discontinued waste handling and disposal practices conducted at the site. The contaminants

C. The COMPANY is the owner of the subject property. has received the necessary authorization from all record property owners to undertake the activities listed in Section II.

OR

C. leases the property from , who is the owner of the property, and has permission from the owner of the property and from all record property owners to undertake the activities listed in Section II.

b) Proposal for establishing target clean-up concentrations based on groundwater quality standards set forth in paragraph .0202 of 15 NCAC 2L and feasibility criteria established under paragraph .0103(e).

c) The COMPANY shall include with the RAP all permit applications required by the Division of Environmental Management, and other appropriate agencies as required, for disposal of waste material and/or discharge of effluents.

2. Design and operation of the Remedial Action System (RAS) - The COMPANY shall outline design criteria to include all engineering specifications, construction details, calculations, schematics, pumping durations, projected time tables, groundwater recovery methods, groundwater treatment procedures, methods of disposal, etc. The design and operation of the RAS must be stamped and sealed by a professional engineer licensed in North Carolina.

3. Monitoring and evaluation of the Remedial Action System - The COMPANY shall propose a monitoring scheme designed to monitor and assess the effectiveness of the recovery system. The plan shall provide the following:

a. Plan for periodic monitoring to detect changes in groundwater movement, plume geometry, and qualitative characteristics of the plume; and to assess site response to disposal of effluent.

b. Plan for continuing re-evaluation of the effectiveness of the RAS in accomplishing target cleanup concentrations based on underground water quality standards set forth in 15 NCAC 2L.

c. The COMPANY shall conduct all analyses in accordance with the following guidelines:

a) hydraulic conductivity
b) transmissivity
c) velocity
d) groundwater flow directions - map required
e) depth to water table
f) groundwater gradient

3) Delineation of contaminant plume - The COMPANY shall define the lateral and vertical extent of contamination to include both free-floating product and dissolved constituents. The COMPANY shall briefly describe the source of contamination (leak, spill, dump, type of product, etc.).

4) Area groundwater use - The COMPANY shall conduct an area survey to identify all water supply wells within 1500 feet of the source of contamination. The information should include but not limited to, the following:

a) well owner
b) well depth
c) well type (public, domestic, irrigation, etc.
d) well location(s)-map required
e) other data if available (construction records; chemical analysis, analysis, etc.

B. The COMPANY shall, within 120 days of SOC approval, submit a Remedial Action Plan designed from the conclusions and findings of the subsurface investigation as follows:

1) The Remedial Action Plan (RAP) shall include, but is not limited to removal and/or treatment of the sources of soil and groundwater contamination.

a) Objectives of the Remedial Action Plan
The COMPANY shall outline goals and expected accomplishments of the Remedial Action Plan. The plan shall include all pertinent information such as recovery and disposal practices, maps, design details, analysis, methodology, testing, and procedures to be encountered during remediation.

D. (Statement regarding results of staff investigation or results of consultant's report GS 143-215.75)

E. (Statement regarding results of staff investigation or results of consultant's report NCAC 2L)

F. The COMPANY has shown a commitment to environmental protection by demonstrating an effort to comply with North Carolina law and regulations. The COMPANY's cooperation with the State is evident by the following actions taken at its , North Carolina facility.

(List in Chronological order)

II. The COMPANY, desiring to comply with the legal requirements of the COMMISSION regarding the Oil Pollution and Hazardous Substance Control Act and the Groundwater Quality Standards and with all pertinent provisions of the law and applicable rules and regulations of the COMMISSION, does hereby agree to do and perform the following activities:

A. The COMPANY shall within 90 days of SOC approval, conduct, complete, and submit the findings of a subsurface investigation which defines the areal and vertical extent of the contamination within the underground waters beneath the subject property and any other property beneath which contamination originating from the subject property has migrated. The investigation shall be performed under the direction of a geologist licensed in North Carolina and consists of the following:

1) Description of site geology - The COMPANY shall determine and identify the geological units, or formations, and lithology beneath the site. A cross section illustrating site stratigraphy shall graphically describe the hydrogeological characteristic to the first confining layer below the lower extent of contamination.

2) Description of site hydrogeology - The COMPANY shall determine groundwater properties of the aquifers that include the following parameters:

1) All groundwater analyses shall be conducted as per EPA Method 602 or 624, as referenced in 40 CRF Part 136.

2) All soil samples shall be analyzed for Total Petroleum Fuel Hydrocarbons (TPHF) by the gas chromatographic method given in "Guidelines for Addressing Fuel Leaks", California Regional Water Quality Control Board, San Francisco Bay Region, September 1985.

C. The RAP and all other reports required by this SOC shall be submitted to Rudy Smithwick, Regional Hydrogeologist, Washington Regional Office, Groundwater Section, P.O. Box 1507, Washington, North Carolina 27889.

D. Following approval of the RAP by the Division of Environmental Management (and after aquisition of all federal, state, and local permits necessary for construction and operation of the RAS), the timetables established in the RAP and approved shall become final. The COMPANY shall begin to implement the RAP within 30 days of SOC approval.

E. The COMPANY shall submit all progress reports and data required under the provisions of the permits issued for the construction and implementation of the RAS. The COMPANY shall report, on a quarterly basis, which will begin with the first day of the month following the month of the SOC approval, the following information:

1) Water levels in all monitoring and recovery wells - map required.

2) Analyses of groundwater samples collected from all monitoring and recovery wells.

3) Amounts of contaminants and groundwater removed by the system during the period of observation.

4) Analyses of the treated groundwater prior to discharge.

5) A general description of the overall performance of RAS.

6) Describe any proposed changes necessary to enhance product recovery and/or improve the efficiency of the RAS.

The COMPANY shall submit the quarterly report on or before the fifteenth (15th) day of the month following the last month of the quarter.

III. The COMPANY shall properly operate and maintain the site so as to minimize the impact of groundwater contamination during the period this Order is in effect.

IV. This SOC shall remain in effect until five (5) years after the date of its approval. The COMPANY agrees that any remediation activities commenced pursuant to Paragraph II shall continue beyond the expiration date of this SOC unless modifications are approved by the Director of the Division of Environmental Management.

V. The COMPANY shall submit, within 14 days after the deadline for completing each item required in Section II A-D, certification whether such items have been performed to Rudy Smithwick, Regional Hydrogeologist, Groundwater Section, P.O. Box 1507, Washington, N.C. 27889.

VI. In the event the COMPANY does not comply with any of the terms of this SOC, it may be subject to civil penalties and all other sanctions provided by North Carolina General Statute 143-215.6.

VII. Nothing in this Order shall prevent the COMPANY from seeking a variance, reclassification, or permit which, if granted by the COMMISSION, may affect the obligations under this SOC.

VIII. The COMPANY agrees that this SOC shall pertain only to the source and property identified in Section 1.B. of this Order. Unless an applicable Special Order or permit has been issued by the COMMISSION, violations of groundwater quality standards resulting from additional sources for which the COMPANY is responsible may subject the COMPANY to all sanctions provided by North Carolina General Statute 143-215.6.

IX. The COMPANY hereby agrees to waive any rights it may have to seek judicial review to challenge this SOC or to seek a stay of enforcement of this Order. However, the COMMISSION acknowledges that this waiver does not prohibit the COMPANY from seeking amendment of this Order if any regulatory standards or other grounds upon which this Order is based are changed subsequent to its execution. In such cases, the COMPANY may petition that the Order be amended to reflect those regulatory or other grounds for change or upon other grounds satisfactory to the COMMISSION.

X. This SOC is not transferable. Any successive owners or occupiers of the subject property must apply to the COMMISSION for a separate SOC.

This, the_____day of_____, 1989.

ATTESTED: BY:_____

_____ _____
(Title)

_____

_____
(Address)

APPROVED AND ACCEPTED BY:_____
(Chairman)

Approved by the Environmental Management Commission on the_____

day of_____, 198__.

Proposed SOC

522-0114

E. I Dupont de Nemours & Co., Inc
Kinston Dacron Plant
P O Box 800
Kinston, NC 28501
Hwy 11 North approximately 9 miles north

I. A. ... in the business of manufacturing dacron polyester fibers and resins

Kentec

E. I. Dupont de Nemour & Co., Inc
Kentec Inc
Rt 3 Box 118
Kinston NC 28530

≈ 2 miles north of Kinston Dacron Plant
off of NC Hwy 11 off of NCSR 1802

in the business of cleaning Parts used by [redacted] Dacron plants

- collect samples around Drain Field A to characterize soil conditions and to determine if a source of contamination exist. (60 days)

- collect sediment and surface water samples from ditch on west side of property to determine extent of contamination (60 days)
to determine source of cont. in swamp)

- Sample potable water wells down gradient of site within 500' radius (60 days)

- Define vertical and horizontal extent of contamination by constructing additional wells
(60 days) (7 shallow) (3 deeper)

- resample all monitor wells VOC Fe Mn and TOC submit results to NRCD (60 days)

- prepare Topo

- submit final assessment (Sept 89)

- If RAP required submit by Jan 1990

- implent 90-120 days

Dupont

- write Jerry Rhodes and ask if they have input

II
- determine the vertical extent of contamination in the GA zone
- provide topo map

phase
- determine occurrence of 1,4 Dioxane in city surface waters

III
-

* what regulations will Dupont be under?
current or proposed
example: existing regulation 0 for 1,4 Dioxane
proposed regulation 7 ppb for 1,4 Dioxane

submit a final assessment by end of Sept 89
assessment

submit RAP by Jan 1990

implement plan within 90-120 days

* write Jerry and give him 15 days to review draft and respond

Path forward

- Data collected will go to: NRCD for action
  NHR for info
- Comments from NRCD & NHR in January - Draft SOC's

- Key contact people for Dupont
  - Mike Babuin
  - Jim Mulligan

- Need to locate site of previous glycol spill from train derailment

- When topo map is prepared, NRCS wants 6 copies @ 8½ x 11

Site Recommendations

- Need TOPO map
- Additional monitoring wells needed
  - Replace No. 6
  - Add 3-4 more to close the loop
- Need a few deeper wells to see if contamination has penetrated the shale Layer
- Need to verify river and surface water data
- Need surface water samples during wet period (winter)
- Need guidance from state as to what regulations we will need to meet - current or proposed groundwater regulations?

Dupont - Raleigh

w/ Solid Waste

Mike Babion — Made Henderson
Gary Babb — Kirk Pollard
Doug Dronfield CH2M Hill
Jerry Henderson - Env. coordinator Dupont
Jan Knieb - Env Affairs Dupont
Jimmy Richardson - Env mng Kinston Dupont
Bill Jeter
Jerry Rhodes
Jim Mulligan
Dick Hargate - spokesman Dupont

1953 Dupont 1st polyester manufacturer of commercial products
650 acre site adj to Neuse

ethylene glycol major component

glycol
waste polyester
methanol
} waste by products

disposal of all type waste research by products etc were disposed of onsite

- Monitor wells were constructed in 1988 at various locations around the site
- Some wells constructed to assess groundwater conditions around the landfill

- MW 7 upgradient for GSC landfill
- MW 13, 14, 15, 16, 7 downgradient for landfill
- MW 1, 2, 3, 5 old wells constructed in 70s to monitor ash landfill

MW 19, 20 down gradient of treatment plant

Bedrock Formation 15 - 30' thick shell

* GET DRAFT SOC TO DUPONT BY JAN 15

KENTEC COMMUNICATIONS PLAN

AUDIENCE	PACKAGE	HOW	WHEN	WHO
1. STATE	CH2M HILL PACKAGE PRESS STATEMENT	MEETING	11/23/88	SITE & CONTRACTORS
2. OPERATIONS GROUP	. PRESS STATEMENT . KEY POINTS . INFO BULLETIN	GROUP	12/5/88	JDH
3. NEIGHBORS	. KEY POINTS . PRESS STATEMENT . SITE MAP	INDIVIDUALLY	12/5/88	HENDERSON RHODES CHOWING
4. PLANT RELATIVES & PENSIONERS	SAME AS NEIGHBORS	INDIVIDUALLY	12/5-6/88	ENV. CONTROL SITE SUPVR.
5. KENTEC EMPLOYEES (PACK CLEANING)	. PRESS STATEMENT . KEYPOINTS . SITE MAP . OCCUAPTIONAL HEALTH EXPOSURE DATA	GROUP	12/5-6/88	RHODES CHOWING
6. PLANT EMPLOYEES	INFO BULLETIN	INFO BULLETIN	12/5/88	JDH
7. MEDIA	PRESS STATEMENT	INDIVIDUALLY W/EQUALS	12/5/88	JGR/JDH/RJH

STATE OF NORTH CAROLINA	BEFORE THE NORTH CAROLINA ENVIRONMENTAL MANAGEMENT
COUNTY OF WAKE	COMMISSION
IN THE MATTER OF THE VIOLATION OF GS 143.215 ET SEQ. OIL POLLUTION AND HAZARDOUS SUBSTANCES CONTROL ACT AND 15 NCAC 2L UNDERGROUND WATER QUALITY STANDARDS APPLICABLE TO NORTH CAROLINA	SPECIAL ORDER BY CONSENT EMC GW #

This SPECIAL ORDER BY CONSENT (SOC) is made and entered into pursuant to North Carolina General Statute 143-215.2, by and between , hereinafter referred to as the COMPANY, and the Environmental Management Commission, an agency of the State of North Carolina, hereinafter known as the COMMISSION.

WITNESSETH:

I. The COMPANY and the COMMISSION do hereby stipulate as follows:

A. (Brief paragraph identifying the responsible party(R.P.) The facility, R.P.'s, business, etc.)

B. This matter concerns a source of groundwater Contamination originating on a parcel of property located at , in County, North Carolina. This matter has been designated as Incident No. by the Groundwater Section of the Division of Environmental Management (DEM) of the Department of Natural Resources and Community Development (NRCD).

The source of the contamination is .

C. The COMPANY is the owner of the subject property. has received the necessary authorization from all record property owners to undertake the activities listed in Section II.

OR

C. leases the property from , who is the owner of the property, and has permission from the owner of the property and from all record property owners to undertake the activities listed in Section II.

RESULTS OF CHEMICAL ANALYSES

- Elevated 1,4 - Dioxane in all Wells for Both Rounds of Sampling
- VOCs Detected in Samples from Wells MW3, MW4, MW6, and MW7
- Elevated Iron Concentrations Correlate with Elevated 1,4 - Dioxane Concentrations
- Locations of Elevated Manganese Concentrations Do Not Correlate with Locations of Other Compounds
- Elevated 1,4 - Dioxane in Offsite Surface Water Samples

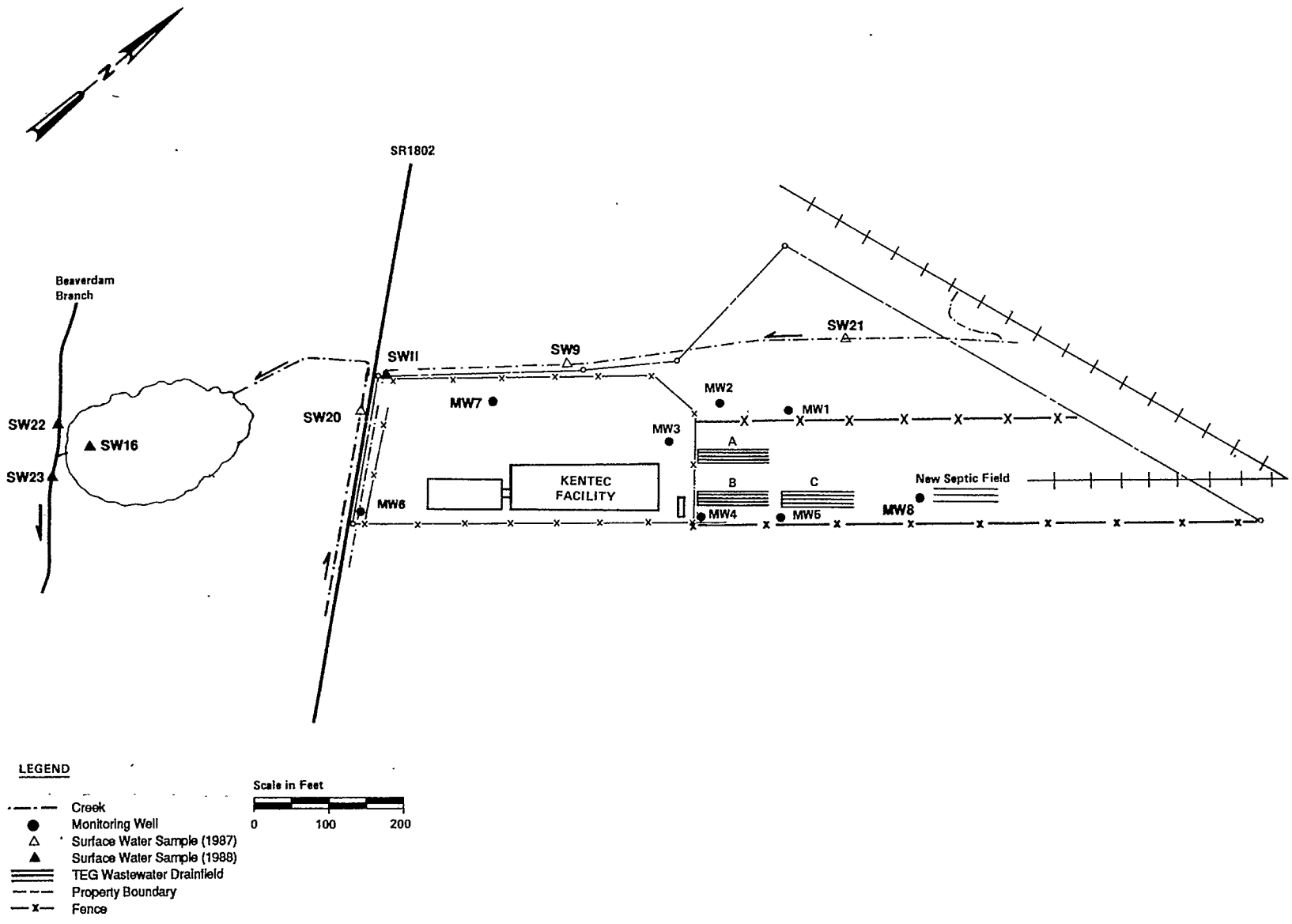


Figure 2
KENTEC SITE PLAN AND SAMPLING LOCATIONS
Dupont Kentec Facility

CH2M HILL

Follow up with a letter:

1. Has background well been installed and have ambient conditions been established upgradient?

2. Has a groundwater flow map accurately depicting site conditions been prepared?

3. Have any down gradient (compliance) water supply wells been located within 1 mile?

4. Has analytical sampling occurred since May of '87? If so, where is data? report states quarterly monitoring to occur

5. Has the contamination plume been delineated both horizontally and vertically? How? Rate

6. Report states silt layer (around -9' ?) is believed to be confining: What evidence exists for this assumption?

7. Range for rate of groundwater movement is estimated at between 230' → 2300'/yr Range should be better defined. Hydraulic conductivity (K) is estimated and should be demonstrated through field testing (slug test, pump test etc)

8. Many compounds are found to be at concentrations higher than standards

TOC	Manganese
COD	Ammonia
Iron	1,4 Dioxane

standard: NOT ground naturally occurring

9 TOC levels reported are high i.e. compounds in the area must be distinguished

10 COD - more info needed to explain high concentrations

11 Recommend additional parameters to sample for: TDS
TOX Total organic halides
pH

12 Provide assurance that contaminated flow remains within the confines of the plant site property.

Phase I

DU PONT KENTEC PROGRESS REPORT

INTRODUCTION

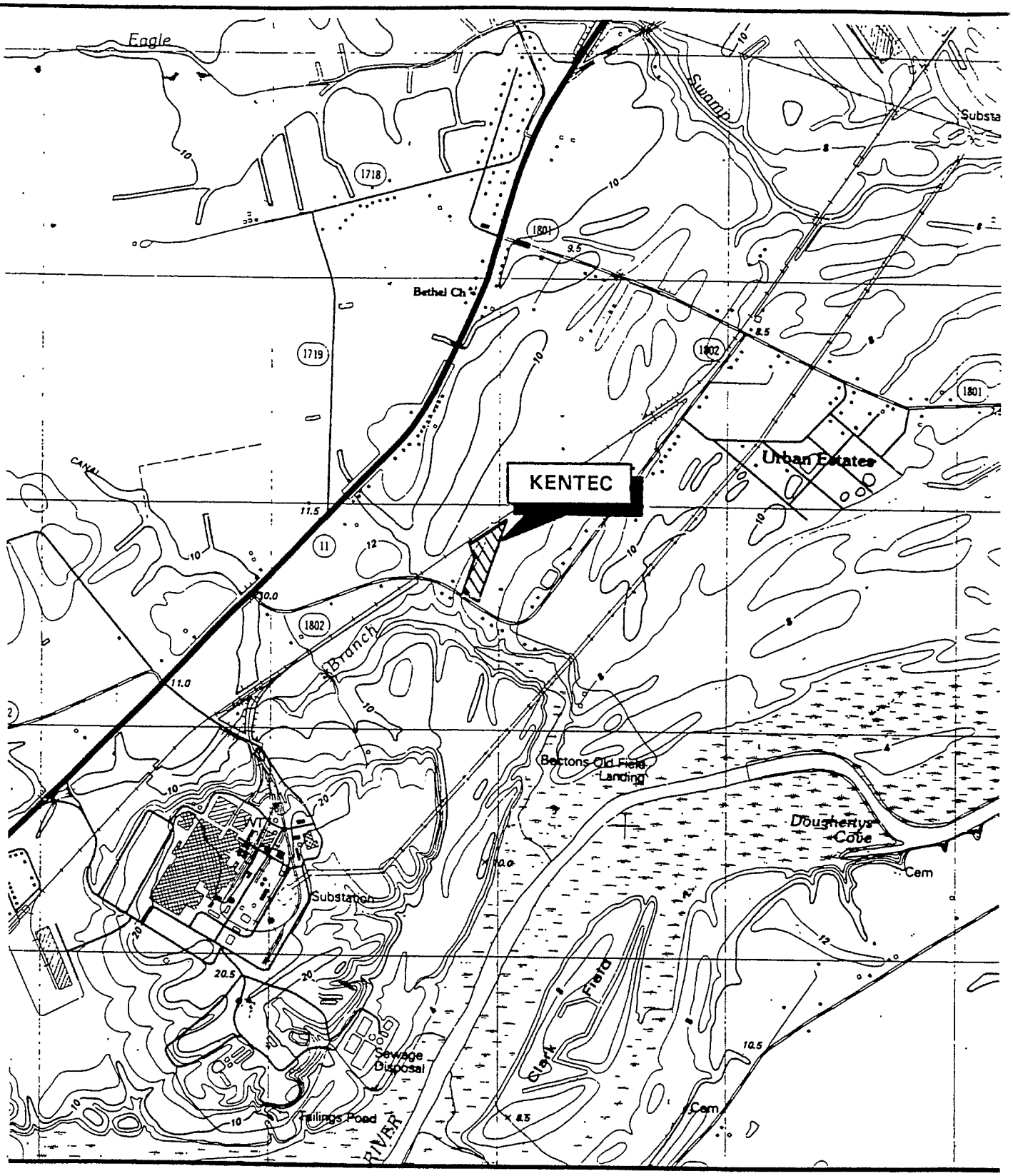
This progress report summarizes work performed by CH2M HILL for Du Pont at the Kentec facility from April 1, 1987, through June 15, 1987. Included in the progress report are discussions of drilling and installation of monitoring wells; sampling of groundwater, surface water, and soil; presentation of analytical results; interpretation of data; and a discussion of preliminary conclusions and recommendations. The location of the Kentec site is given in Figure 1. The Kentec site plan and sampling locations are given in Figure 2.

DRILLING/INSTALLATION OF MONITORING WELLS

This section describes the procedures, materials, and equipment used in drilling, sampling of subsurface soils, and well installation at Kentec. Drilling and well installation services were provided by ATEC Associates of Raleigh, North Carolina, under supervision by D. Dronfield of CH2M HILL.

Drilling and installation of six shallow monitoring wells were performed between April 13 and April 17, 1987. Each 10-inch borehole was drilled using hollow stem augers to a depth of approximately 15 feet below land surface. During the drilling of each of the six boreholes, soil samples were obtained from each borehole using an 18-inch split spoon sampler. Two-inch diameter PVC monitoring well screens and pipe were installed in each borehole. A sand pack was placed in the annulus between the borehole and well screen to a depth approximately 1 foot above the top of the well screen. A one- to two-foot bentonite seal was placed on top of the sand pack to provide protection from surface runoff migrating downward along the well pipe. The remainder of the annulus was grouted to the surface with cement. A protective locking steel casing was placed over each well. At MW3, the well and protective steel casing were finished below ground surface with a manhole cover on top of the well. All drilling equipment was steam-cleaned between boreholes. Each well was developed by surging and pumping with a suction pump to allow better water flow to the well. Summary soil boring logs and well completion diagrams are given at the end of this report.

One soil sample was collected from each borehole in the saturated sand zone with the split spoon sampler for chemical analysis. Each split spoon sampler was steam-cleaned prior to collecting soil for chemical analysis. At MW1,



LEGEND

Source: USGS Grifton Quadrangle
North Carolina, 1983

Contour Interval — 2 Meters

SCALE:

1000 0 1000

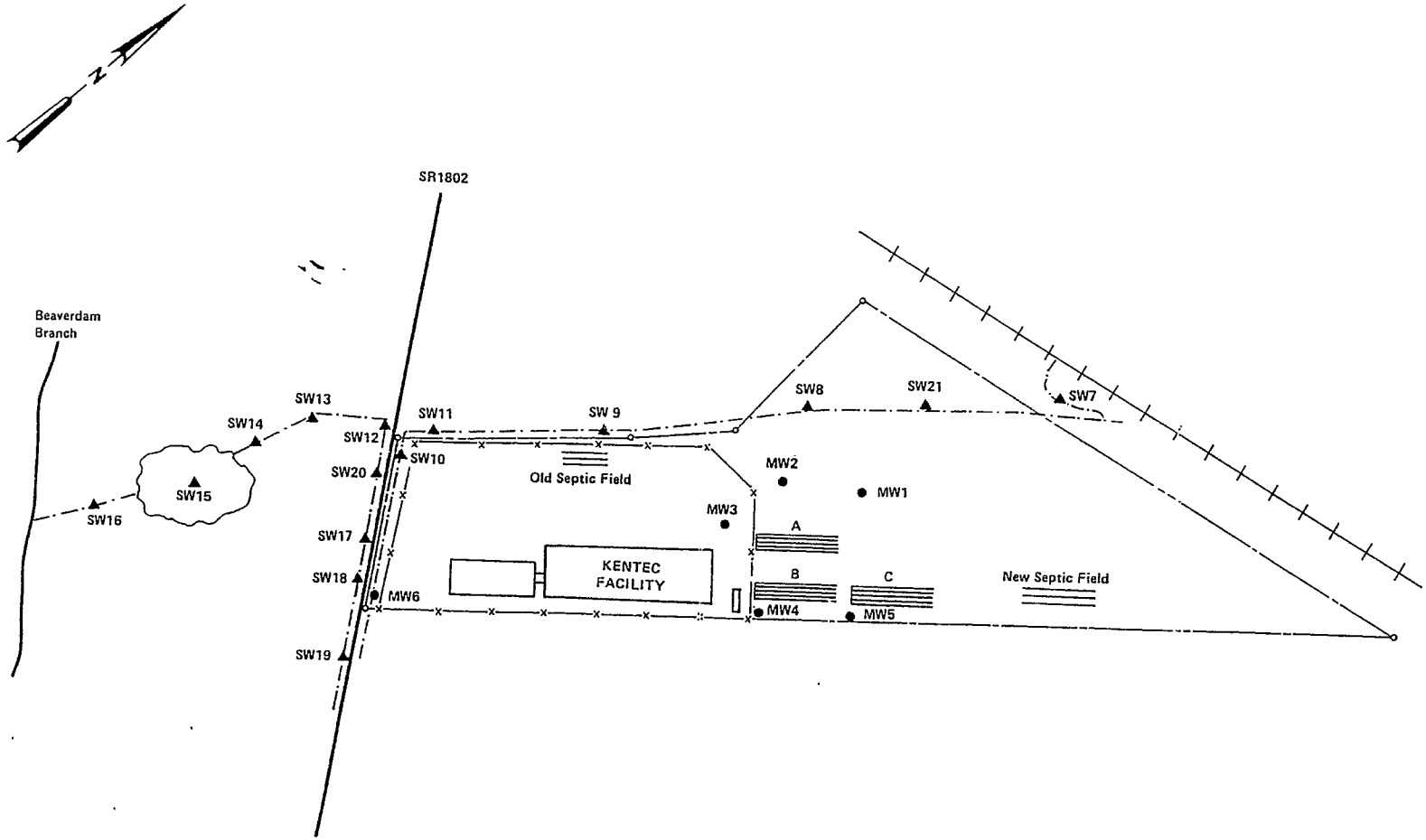
1 inch equals 1000 feet

- N -

D 000406

Figure 1
KENTEC SITE LOCATION

CH2MHILL



D[redacted]0407

Figure 2
KENTEC SITE PLAN AND SAMPLING LOCATIONS

CH2MHILL

MW2, MW3, and MW6, the depth of the soil sample for chemical analysis was between 3.5 feet and 5 feet. At MW4 and MW5, the depth of the soil sample for chemical analysis was between 8.5 feet and 10 feet. Barrow Surveying and Mapping surveyed elevations for each monitoring well on April 23, 1987.

GROUNDWATER AND SURFACE WATER SAMPLING

D. Dronfield of CH2M HILL and J. Bailey of Du Pont-Kinston collected groundwater and surface water samples on May 14 and May 15, 1987. Water level measurements were made in the afternoon of May 14, 1987, in each of the monitoring wells. MW1, MW2, and MW5 were sampled on May 14, 1987. MW3, MW4, MW6, and the three surface water samples were collected on May 15, 1987.

Each of the wells was purged with a positive-displacement bladder pump prior to sampling until pH, Eh, conductivity, and temperature of the groundwater had stabilized for three well volumes. Groundwater samples were then collected with the pump into sample jars provided by Du Pont. All metals samples were filtered with a 0.45 micron filter prior to preservation in the field. All samples were preserved in the field as specified by the lab. All sampling equipment was cleaned with 2 gallons of 10 percent acetone rinse. At the end of each day, the samples were taken by J. Bailey to Law and Company Laboratory in Wilmington, North Carolina. Surface water samples were collected from the creeks directly into sample jars. The exact location of the creek upstream of drainfield A is currently uncertain.

ANALYTICAL RESULTS

Water level measurements and survey data are presented in Table 1. The groundwater field parameters (pH, Eh, conductivity, and temperature) measured for each well are given in Table 2.

Chemical analytical results provided by Du Pont for surface water samples they collected are given in Table 3. These results indicate elevated triethylene glycol (TEG) in surface water samples from the ditch adjacent to the front of the site within a day of a TEG surface spill (April 7, 1987). On April 10, 1987, elevated TOC and COD were observed in surface water samples SW10, SW11, SW14, and SW17 when compared to concentrations in SW8 and SW9. Iron concentrations were elevated in all samples relative to SW8. Fecal coliform was elevated at SW8.

Table 1
WATER LEVELS IN MONITORING WELLS

Well Number	Water Level (feet above MSL) May 14, 1987	Ground Elevation (ft)	Surveyed Top of Protective Casing Elevation (ft)
MW1	27.43	29.0	31.21
MW2	27.44	30.0	32.22
MW3	27.28	29.5	29.09
MW4	27.42	30.6	32.99
MW5	27.47	30.6	32.81
MW6	24.59	28.5	30.70

Water level measurements are accurate to ±0.02 feet, which includes ±0.01 feet for top of protective casing measurements.
Elevations are N.C.G.S. vertical control.

WDR252/022

Table 2
FIELD PARAMETERS
MAY 14-15, 1987

Well Number	pH	Eh* (mv)	Conductivity (µmhos)	Temperature (°C)
MW1	6.5	-234	750	15
MW2	6.6	-393	550	16
MW3	6.7	-85	510	16
MW4	6.3	-164	1,270	16
MW5	6.6	-146	720	18.5
MW6	6.1	-167	1,790	17.5

*Uncorrected field measurement

WDR252/023

Table 3
CHEMICAL ANALYTICAL RESULTS--SURFACE WATER SAMPLES
April 8, 10, 1987
(Results in ppm)

Sample Number	April 8, 1987				April 10, 1987								
	TEG 2 a.m.	TEG 9 a.m.	TEG 3 p.m.	TEG 7 p.m.	TOC	COD	Sb	Ti	Fe	TDS	Oil & Grease	pH	Fecal Coliform (c/100 ml)
SW7	-	-	-	-	-	-	-	-	-	-	-	-	9
SW8	-	-	-	-	23	23	<0.2	<0.3	1.9	210	6.3	-	460/460
SW9	-	-	-	-	99	361	<0.2	<0.3	95	578	-	-	-
SW10	-	-	1,200	-	1,170	6,589	<0.2	<0.3	82.5	650	-	-	-
SW11	-	-	-	0	244	878	<0.2	<0.3	30.6	496	6.1	4.5	9/43
SW12	21,000	500	300	-	-	-	-	-	-	-	-	-	-
SW13	6,000	300	300	-	-	-	-	-	-	-	-	-	-
SW14	-	400	500	200	318	1,418	<0.2	<0.3	32.5	670	-	5.2	21
SW15	-	0	0	-	-	-	-	-	-	-	-	-	-
SW16	-	0	-	-	-	-	-	-	-	-	-	7.0	-
SW17	-	-	-	-	1,140	2,375	<0.2	<0.3	200	256	-	-	-
SW18	486,000	-	2,100	400	-	-	-	-	-	-	-	-	-
SW19	-	-	-	-	-	-	-	-	-	-	-	-	-

All samples unfiltered in field and collected by DuPont.
Dash (-) indicates parameter not analyzed.
< indicates concentration is below detection limit given.
No field parameters measured.

On April 28, 1987, elevated TEG, diethylene glycol (DEG), acetic acid, and buteric acid were observed in SW18 (Table 4). 1,4 dioxane was also observed in SW18 on May 8, 1987.

CH2M HILL collected one soil sample for chemical analysis from each of the monitoring well boreholes between April 14 and April 17, 1987. The analytical results are presented in Table 5. Elevated concentrations of TEG, TOC, and COD were observed in MW6 when compared to the other samples. TEG was observed above the 10 ppm detection limit in only one sample, MW6 (430 ppm).

Groundwater and surface water samples were collected on May 14 and May 15, 1987, by CH2M HILL and Du Pont. The analytical results are presented in Table 6. Concentrations of TOC and COD are elevated in MW6 when compared to the other monitoring well samples. Acetic acid was observed near the detection limit in samples from MW5 and MW6. Iron was high in all monitoring well samples ranging from 8.1 ppm in MW5 to 63.8 ppm in MW3. Manganese concentrations in samples ranged from 0.69 ppm in MW1 to 8.53 ppm in MW5. Ammonia concentrations were elevated in samples from MW4 (31.1 ppm) and MW5 (18.1 ppm) when compared to the other well samples. 1,4 dioxane was observed in all groundwater samples ranging from 0.3 ppm in MW5 to 16 ppm in MW6. Acetone was observed in samples from all wells except MW1. Other volatile organic compounds were observed in samples from MW3, MW4, and MW6 at lower concentrations.

Acetic acid and buteric acid were above detection limits in all three surface water samples. Nitrate (2.38 ppm) and total phosphorus (1.07 ppm) were elevated in SW20 when compared to the other water samples. Fecal coliform were ≥2,400c/100 ml in all three surface water samples.

DATA INTERPRETATION

The investigation at Kentec has focused on three areas; (1) impacts of disposal of TEG wastewater in Drainfield A, (2) impacts of septic system operation, and (3) iron staining in ditch along SR1802. This section discusses the pertinent hydrogeology information at the site followed by a discussion of these three areas of investigation.

HYDROGEOLOGY

The topography at the site is relatively flat at an elevation of approximately 30 feet above mean sea level. Topography slopes downward toward the creek northwest of the site and more steeply across SR1802 toward Beaverdam Branch southwest of the site.

Table 4
CHEMICAL ANALYTICAL RESULTS--SURFACE WATER SAMPLES
APRIL 28, MAY 8, 1987
(Results in ppm)

Sample Number	April 28, 1987								May 8, 1987
	MeOH	Ethanol	Acetic Acid	Propionic Acid	Buteric Acid	1,4 Dioxane	DEG	TEG	1,4 Dioxane
SW10	-	-	-	-	-	-	-	-	<1
SW18	trace	trace	700	trace	250	trace	20	1,000	56±13

Dash (-) indicates parameter not analyzed.
< indicates concentration is below detection limit given.
No field parameters were measured.

WDR253/026

Table 5
CHEMICAL ANALYTICAL RESULTS--SOIL SAMPLES
APRIL 14-17, 1987
(Results in ppm)

Analysis	MW1	MW2	MW3	MW4	MW5	MW6
TEG	<10	<10	<10	<10	<10	430
TOC	781	919	758	346	645	1,244
COD	1,537	1,340	1,284	889	960	2,340
Titanium	<12	<12	<12	<12	<12	<12
Antimony	<8	<8	<8	<8	<8	<8
Iron	3,600	2,700	2,450	1,150	1,020	880
Chromium	5	4	4	1	2	2
Cobalt	1	<1	<1	<1	<1	<1
Manganese	13.8	4.8	4.8	7.2	7.2	1.8
Acetic Acid	<2	<2	<2	<2	<2	<2
Buteric Acid	<2	<2	<2	<2	<2	<2

<--indicates concentration is below detection limit given.

WDR252/020

Table 6 (Revised 7-30-87)
CHEMICAL ANALYTICAL RESULTS--GROUNDWATER AND SURFACE WATER SAMPLES, MAY 14-15, 1987
(Results in ppm)

Analysis	Groundwater							Surface Water		
						Duplicates				
	MW1	MW2	MW3	MW4	MW5	MW6	MW6B	SW9	SW20	SW21
TEG	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acetic Acid	<2	<2	<2	<2	3	7	3	10	21	9
Buteric Acid	<2	<2	<2	<2	<2	<2	3	2	4	2
TOC	110	75	65	83	26	600	609	62	57	34
COD	194	154	169	206	52	1,570	1,790	116	371	71
Titanium	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Antimony	<0.3	<0.2	<0.2	<0.2	1.0	<0.2	<0.2	<0.2	<0.2	<0.2
Iron	25	30	63.8	37.5	8.1	57.5	58.8	17.5	3.75	2
Chromium	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Cobalt	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Manganese	0.69	0.9	1.38	8.55	2.55	1.32	1.32	0.23	0.24	0.09
Ammonia	2.4	1.3	0.1	31.1	18.1	<0.05	<0.05	0.4	0.2	0.1
Nitrate	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	2.38	<0.2
Total Phosphorus	0.13	0.2	0.1	0.03	0.15	0.51	0.77	0.1	1.07	<0.2
Chloride	19	15	9	10	9	26	18	33	6	29
Fecal Coliform (C/100 ml)	0	0	0	0	0	0	0	≥2,400	≥2,400	≥2,400
VOC[a]										
1,4 Dioxane	1.7	1.6	1.00	1.9	0.3	16	--	--	--	--
Acetone	0.035	1.4	0.90	3.8	0.14	1.3				
Chloroethane	BMDL	BMDL	0.011	0.0015	BMDL	0.043				
Toluene	BMDL	BMDL	BMDL	0.0011	BMDL	0.0043				
1,1 Dichloroethene	BMDL	BMDL	BMDL	BMDL	BMDL	0.0017				
1,1 Dichloroethane	BMDL	BMDL	.0016	BMDL	BMDL	0.011				
2-Butanone	BMDL	BMDL	BMDL	BMDL	BMDL	0.13				
Benzene	BMDL	BMDL	BMDL	BMDL	BMDL	0.0021				
4 Methyl-2 pentanone	BMDL	BMDL	BMDL	BMDL	BMDL	0.0021				

[a]Compounds in this group that are not shown in this table were below detection limits.
BMDL--All compounds in this group were below method detection limits. Values for detection limits are given in Table 7 at the end of this report.
<--Below detection limit shown.
Dash (--) indicates constituent not analyzed.
Groundwater metals samples were filtered in the field.

WDR252/021

The surficial geology of the Kentec site is described from boring log data from the monitoring well construction. The uppermost stratigraphic unit consists of a silty sand to a coarse sand with gravel to a depth of between 5 and 10 feet below ground surface. This zone is thickest at MW4 and MW5. Beneath this sand zone is a clayey silt with some sandy silt and sand. The thickness of this zone is unknown, but is at least 5 to 10 feet thick at each of the boreholes.

Hydraulic conductivity is a measure of the capacity of a material to transmit water. Hydraulic conductivities were not measured directly at the site, but can be estimated from published literature based on the type of soil present. The uppermost sand zone hydraulic conductivity would be approximately 10^{-3} to 10^{-4} feet/second. The clayey silt hydraulic conductivity would be estimated to be three orders of magnitude less than the sand or approximately 10^{-6} to 10^{-7} feet/second.

Water levels were measured in all six monitoring wells on May 14, 1987, (Table 1). Water level measurements indicate that the direction of horizontal groundwater flow in the surficial aquifer within the sand zone is generally toward the southwest and SR1802. However, some localized flow may be toward the creek northwest of the site. Flow may be radially away from the drainfield and/or septic field when they are active as a result of mounding of water under the fields. The discharge area for the surficial aquifer at the site is believed to be the ditch along SR1802, marsh, and Beaverdam Branch.

The silt zone may be acting as an "impermeable" layer causing the surficial aquifer in the sand zone to be perched on top of the silt. However, not enough data are available to verify this or to determine where all discharge points for the perched zone are located. The hydraulic conductivity of the silt zone is believed to be low enough to inhibit significant flow vertically into deeper water bearing zones; however, data are not available to verify this.

The average linear velocity of groundwater is a measure of the average rate of movement of a particle of water parallel to the flow direction. Average linear velocity (v) is calculated by multiplying the hydraulic conductivity (k) by the hydraulic gradient (difference in water levels divided by the distance between the water level measurements) divided by the effective porosity (n). Effective porosities of sands and silty sands typically are 0.25 and the hydraulic gradient between MW1 and MW6 is 0.0057 based on water levels measured on May 14. The rate of movement of groundwater in the surficial sand zone would range between 230 feet and 2,300 feet per year.

TEG WASTEWATER

Data from the monitoring wells suggest that there is no TEG contamination greater than 10 ppm in the soil or groundwater near the drainfield. This is not surprising given the physiochemical properties of TEG, its high solubility in water and the projected high groundwater flow rates in the surficial aquifer at the Kentec facility. However, other constituents of the waste stream, 1,4 dioxane and manganese, are present at elevated concentrations in the groundwater near the drainfield, suggesting some residual contamination is still present. The sand at the sand/silt interface was a black color, suggesting the presence of manganese. The 1,4 dioxane, TOC, and COD concentrations in the water sample from MW6 are an order-of-magnitude higher than concentrations observed in the samples from other wells suggesting that the plume of contamination has moved downgradient from the drainfield since the time that disposal at the drainfield was discontinued. The location of the plume is expected as a result of the groundwater flow estimates and flow direction already discussed, especially since 1,4 dioxane does not have the tendency to readily absorb to soil. However, the elevated TEG concentration in the soil from MW6 suggests that the groundwater contamination may in part be due to known surface-spill contamination nearby. Currently, data do not exist to determine if groundwater and/or surface water downgradient of the site has elevated TEG or other constituent concentrations.

The only regulatory human health criteria to assess the effects of 1,4 dioxane in the groundwater are from the draft Safe Drinking Water Act Health Advisory, 1985. Concentration limits for ingestion of 1,4 dioxane in water by a child for 1 day is 5.7 ppm and for 10 days is 0.57 ppm. These concentrations are health advisories; they are not enforceable regulatory levels. The U.S. EPA Carcinogenic Assessment Group classifies 1,4 dioxane as a probable human carcinogen and a positive animal carcinogen. Manganese has a Safe Drinking Water Act Interim Secondary Maximum Contaminant Level of 0.05 ppm. This is based on aesthetic considerations only and not on human health criteria.

Acetone concentrations in MW2 through MW6 are believed to result from the use of 10 percent acetone rinse solution to decontaminate the sampling equipment. Other volatile organic compounds were observed in some groundwater samples at concentrations below but near proposed Safe Drinking Water Act Maximum Contaminant Levels (see Table 6).

SEPTIC SYSTEM

Analysis of samples of surface water collected on April 10, 1987, from the creek adjacent to the Kentec facility

indicates the presence of fecal coliform in the four samples analyzed. Additional samples were collected on May 14-15, 1987, to attempt to identify the potential source of fecal coliform in the creeks.

Indicator parameters (NH_3, NO_3, P and Cl) analyzed in the May samples do not indicate significant influence on groundwater chemistry from the new septic system. The wells sampled were located to assess the influence of the TEG drainfield and not specifically located to detect the influence of the new or old septic system drainfields. However, MW4 and MW5 had elevated ammonia suggesting possible contamination from the septic field.

Fecal coliform in the surface water samples on May 15, 1987, was high. The only plausible means of coliforms reaching the SW20 location from the new septic field would be by groundwater. However, there were no fecal coliform in groundwater samples. Therefore, elevated fecal coliform in the May samples may result from other sources, either animal or other septic systems.

IRON DISCOLORATION

Discoloration of sediment in the ditch southwest and downgradient of the Kentec facility is believed to be the result of iron precipitation from groundwater when it comes in contact with oxygen. Concentrations of iron in groundwater are high in all monitoring well samples. Iron concentrations in excess of 100 ppm have been reported for groundwaters from coastal plain aquifers in other parts of the Atlantic Coastal Plain. Concentrations of iron can be this high based on equilibrium chemistry with the given pH and reducing conditions of the groundwater. However, dissolution of iron from soil into groundwater can be enhanced as a result of localized reducing conditions caused by the TEG drainfield or septic field at the site. No background groundwater data is available to permit comparison. One nearby resident indicated that the iron discoloration in the ditch predates the Kentec facility.

DISCUSSION

Analysis of geochemical and hydrogeologic data from monitoring wells installed at the Kentec facility suggest that residual TEG onsite contamination from the rinsewater drainfield is minor. This preliminary conclusion is based on the low TEG levels obtained in the monitoring wells. However, residual contamination from 1,4 dioxane and possibly manganese are evident in the groundwater. While the source of contamination has ceased (i.e., drainfield is inoperative) some residual contamination from the drainfield

may still be leaching into the groundwater and migrating slowly downgradient. It is unknown whether any significant concentrations of constituents are entering offsite surface water downgradient of the plume or if there are any downgradient water supply wells.

There does not appear to be any significant contamination as a result of the current septic field. The source of elevated fecal coliform in surface water is currently uncertain.

Iron discoloration in the ditch adjacent to the facility is believed to be the result of precipitation of high concentrations of dissolved iron from groundwater. The high concentration of iron may in part be a result of locally reducing conditions in the groundwater due to the drainfield or septic field. Alternatively, the high concentration may represent natural groundwater quality conditions.

The following actions are recommended to help resolve questions raised during the initial phase of the investigation.

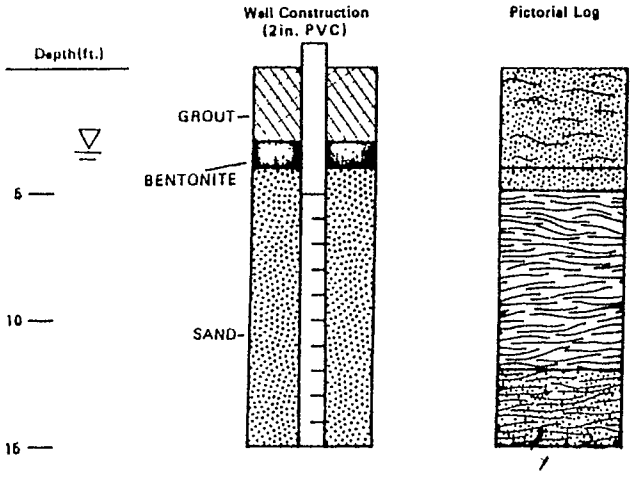
- Inventory all nearby residences along SR1802 to determine if any property owners use well water for human or animal consumption and how the wells are constructed. If any shallow water wells exist, Du Pont may want to sample them for 1,4 dioxane and TEG. WAS THIS DONE?
- Sample five surface water locations downgradient of the site for 1,4 dioxane and TEG to determine if significant concentrations of these compounds are discharging from the groundwater. Resample MW6 and MW1 for the same parameters. AS ABOVE
- Resample six surface water locations for fecal and total coliform to determine validity of past results and to localize sources of high fecal coliform if they exist. A-AB.
- Install one background well near the proposed railroad spur to obtain background groundwater quality data. This should be installed at the same time as monitor well installation at the Kinston plant to minimize costs. A-AB

WDR249/087

Table 7
DETECTION LIMITS FOR VOLATILE ORGANIC COMPOUNDS

Volatile Compounds	Method Detection Limit	
	Water (ppb)	Soil (ppb)
Chloromethane	5	5
Bromomethane	5	5
Vinyl Chloride	5	5
Chloroethane	5	5
Methylene Chloride	5	5
Trichlorofluoromethane	5	5
1,1-Dichloroethene	5	5
1,1-Dichloroethane	5	5
Trans-1,2-Dichloroethene	5	5
Chloroform	5	5
1,2-Dichloroethane	5	5
1,1,1-Trichloroethane	5	5
Carbon Tetrachloride	5	5
Bromodichloromethane	5	5
1,2-Dichloropropane	5	5
Trans-1,3-Dichloropropene	5	5
Trichloroethylene	5	5
Benzene	5	5
Dibromochloromethane	5	5
1,1,2-Trichloroethane	5	5
Cis-1,3-Dichloropropene	5	5
2-Chloroethyl vinyl ether	10	10
Bromoform	5	5
1,1,2,2-Tetrachloroethane	5	5
Tetrachloroethene	5	5
Toluene	5	5
Chlorobenzene	5	5
Ethyl Benzene	5	5
Acrylonitrile	100	100
Acrolein	100	100
Dichlorodifluoromethane	3	3
1,4 Dioxane	5	5

WDR253/032

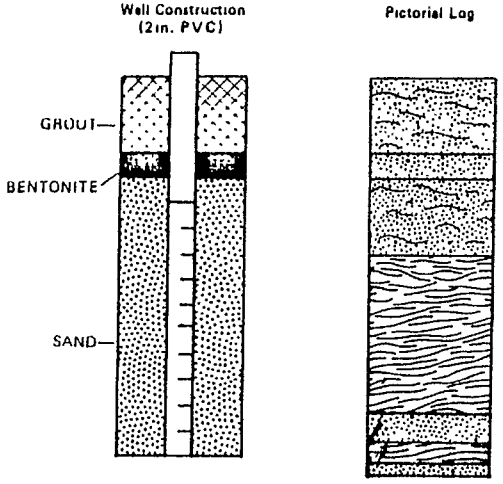


Sample Number	Interval (ft.)	Recovery (in.)	Blow Counts 6"–6"–6"–6"	Written Log	Elevation (ft.)
					29.0
S1	0–1.5	11	3–3–4	Fine silty sand, dusky brown (5YR 2/2) – gray orange (10YR 7/4), moist.	
S2	3.5–5	18	7–9–11	M – c. sand, gray-orange (10YR 7/4), to fine silty sand, green gray (5GY 4/1), wet.	24.0
S3	8.5–10	24	12–16–22	Clayey silt with trace sand, green-black (5G 2/1), dense, sl. plastic, moist.	19.0
S4	13.5–15	20	5–9–12	Sandy silt with trace clay, green black (5G 2/1), dense, v. sl. plastic, some glauconite, v. moist.	14.0
					9.0

D000421

WELL CONSTRUCTION AND GEOLOGIC LOG
MONITORING WELL 1
Du PONT – KENTEC

CH2MHILL

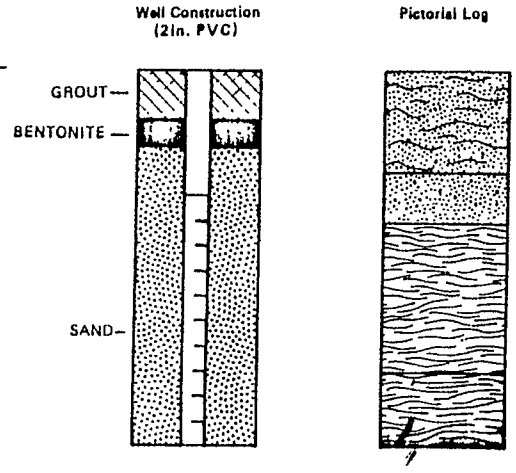


Sample Number	Interval (ft.)	Recovery (in.)	Blow Counts 6"–6"–6"–6"	Written Log	Elevation (ft.)
					30.0
S1	0 1.5	14	2 1 2	Fine sand with some silt, dusky yel. br. (10YR 2/2) gray orange (10YR 7/4) sl. moist.	
S2	3.5–5	15	2–5–8	Fine –m sand, trace silt, yel. orange (10YR 6/6), wet.	
				Fine –m silty sand, trace clay, green gray (5G 2/1), sl. plastic, dense, v. moist.	25.0
S3	8.5–10	24	2–6–7	Clayey silt, trace sand, green-black (5G 2/1), sl. plastic, dense, v. moist.	20.0
S4	13.5–15	10	17–29–14	Fine –m. sand with some gravel, grey-green (5GY 4/1), wet.	
S5	14–15.5	24	6–14–15	Clayey sandy silt, green-black (5G 2/1), dense, sl. plastic, v. moist.	15.0
				M–c. sand, gray (N4), wet.	
					10.0

D00004 22

WELL CONSTRUCTION AND GEOLOGIC LOG
MONITORING WELL 2
Du PONT - KENTEC

CRAHILL

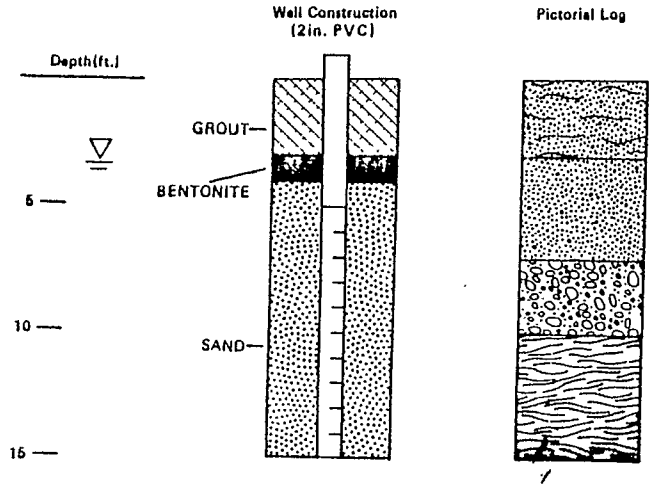


Sample Number	Interval (ft.)	Recovery (in.)	Blow Counts 6"–6"–6"–6"	Written Log	Elevation (ft.)
					29.5
				Fine silty sand, yellow orange (10YR 6/6)– gray orange (10YR 7/4) moist-wet.	
S1	3.5–5	17	5–8–9	Fine–c. sand, with some silt, color as above, wet.	24.5
S2	8.5–10	18	3–6–10	Clayey sandy silt, gray (N3), dense, sl. plastic, v. moist.	19.5
S3	13.5–15	18	7–12–12	As above, with more sand, with some glauconite, moist.	14.5
					9.5

DE0004423

WELL CONSTRUCTION AND GEOLOGIC LOG
MONITORING WELL 3
Du PONT – KENTEC

CH2MHILL

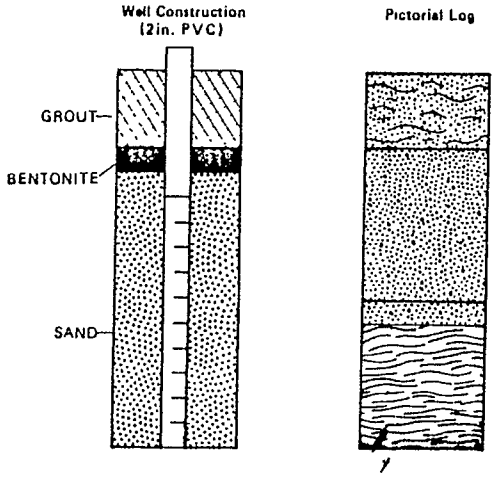


Sample Number	Interval (ft.)	Recovery (in.)	Blow Counts 6"–6"–6"–6"	Written Log	Elevation (ft.)
					30.6
S1	0–1.5	18	3–2–2	Fine silty sand, yell. br. (10YR 4/2)–yell. orange (10YR 6/6), moist.	
S2	3.5–5	17	4–6–6	Fine–c. sand, trace silt, yell. orange (10YR 6/6), gray orange (10YR 7/4), wet.	25.6
S3	8.5–10	24	3–4–5	M–c. sand with some gravel, gray (N4–N5)–black ((N1), wet.	20.6
S4	13.5–5	24	8–10–14	Clayey silt with some sand, green black (5G 2/1)-gray (N4), dense, moist-wet.	15.6
					10.6

D000424

WELL CONSTRUCTION AND GEOLOGIC LOG
MONITORING WELL 4
Du PONT – KENTEC

CH2MHILL

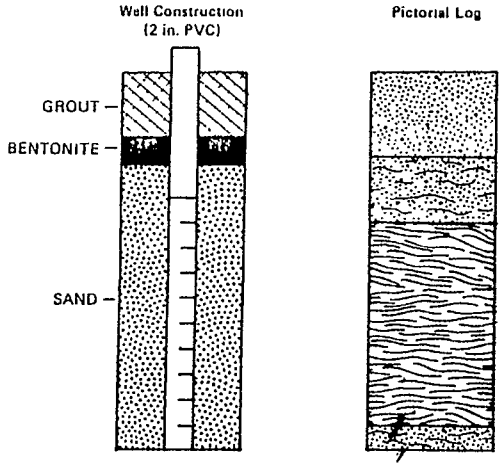


Sample Number	Interval (ft.)	Recovery (in.)	Blow Counts 6"–6"–6"–6"	Written Log	Elevation (ft.)
					30.6
S1	0–1.5	24	3–2–2	Fine silty sand, dusky yell. br. (10YR 4/2)– yell. orange (10YR 6/6), moist.	
S2	3.5–5	18	2–2–4		25.6
				M–c. sand, gray orange (10YR 7/4), wet.	
S3	8.5–10	24	2–3–4	As above but black (N1), wet.	20.6
				Clayey sandy silt, green black (5G 2/1), wet	
S4	13.5–15	18	6–8–11		15.8
					10.6

D000425

WELL CONSTRUCTION AND GEOLOGIC LOG
MONITORING WELL 5
Du PONT – KENTEC

CRMHILL



Sample Number	Interval (ft.)	Recovery (in.)	Blow Counts 6"–6"–6"–6"	Written Log	Elevation (ft.)
					28.5
				Fine–c. sand, gray orange (10YR 7/4) wet.	
S1	3.5–5	15	7–9–11	Fine–m. silty sand, gray green (5G 6/1), sl. cohesive, wet.	23.5
S2	8.5–10	20	7–10–14	Clayey sandy silt, green-black (5G 2/1), sl. plastic, dense, v. moist	18.5
S3	13.5–15	18	7–13–18	Silty sand, green black (5G 2/1), wet	13.5
					8.5

D00042G

WELL CONSTRUCTION AND GEOLOGIC LOG
MONITORING WELL 6
Du PONT – KENTEC

CRMHILL

WaRO COPY

DIVISION OF ENVIRONMENTAL MANAGEMENT
January 22, 1987

MEMORANDUM

TO: Bob Cheek

THROUGH: Willie Hardison WH

FROM: Richard R. Powers RRP

SUBJECT: Kentec, Inc. (formerly James Enterprises)
Non-Discharge Permit #12725
Lenoir County

This facility is now a wholly owned subsidiary of E.I. DuPont. There are some activities going on that may affect groundwater and our monitoring of this site.

1. The non-discharge type plant permitted by Permit #7210 ceased applying wastewater around January, 1986.

2. They are presently collecting the wastewater into railroad tank cars and shipping to DuPont's Chambers Works facility in Deepwater, New Jersey. See attached Permit #12725.

3. A new WWTP at the Kentec site is being planned, and an application was to have been sent to WQ in November, 1986. The proposed system is to be operational by August 31, 1987.

4. Some discussion with DuPont on a remedial action plan to restore the site has been mentioned by WQ, but they wish to wait until the new WWTP is operational first. Please concur if you feel we should request an hydro-geologic investigation.

With these facts in mind, I propose that this facility continue to monitor the three monitor wells tri-annually until such time as the new plant is operational. Parameters should be:

Water Level	Total Dissolved Solids
pH	Chlorides Cl
COD	Antimony Sb
Iron Fe	TOC
Magnesium Mg	Ammonia TA
Sodium Na	Nitrates NO_3

[redacted] ← RRP 1-22-87

The next decision regarding this site is what our requirements will be for remedial action. Alton Hodge, of WQ, informs me they will accept responsibility for this site. At a minimum, they should define the contaminant plume per Douglas Dixon's January 12, 1987 memo and submit some kind of proposal for site restoration.

Please review and comment to either Willie or me. If you have any questions, please call.

RRP:mgr

Attachments

WELL DATA TABULATION

POLLUTION SOURCE MONITORING SITE

KENTEC INC. Rt3 Box 116 GRIFTON, N.C. 28530

Facility Name: JAMES ENTERPRISES County: LENOIR

Pollution Source (lagoon, landfill, etc.) DRAINFIELD Latitude: X352035

Permit No: Longitude: X0772750

Non-Discharge: /12725 NPDES: X

Well Const.: X DHS: X Quad No: X P-25W

Sampled By: ENVIRONMENT 1, INC

Well No.	Date Installed	Total Depth (ft)	Diam. (in)	Screen(S)/ ~~Open hole~~ (~~Dia~~) (ft-ft)	Grout Interval (ft-ft)	Gravel/Sand Pack Interval (ft-ft)	Remarks
1	20 MAR 83	9.58	2	4.5-9.5	NONE	NONE	
2	15 JULY 82	54.5	2	44-54	"	"	
3	20 MAR 83	54	2	44-54	"	"	

Draw a diagram on the reverse side of this form showing map location of the site and the location (direction and distance) of each well with respect to the pollution source and to each other. Indicate sampling schedule, parameters and any changes to schedule.

GW-57

COMPLIANCE MONITORING REPORT FORM

Environmental Management Division
Groundwater Section
P.O. Box 27687
Raleigh,N.C. 27611
(919)733-5083

Facility Name Kentec, Inc. County Lenoir

Address Rt. 3, Box 116 Permit Number: 7210

Grifton, NC 28530 Non-Discharge X

Well Location 150' to left of gate NPDES

Well Identification Number #1 Well Depth 9.58 Ft. Water Use

Well Diameter 2" Sample (Screened) Interval 4.5 Ft. To 9.5 Ft. Injection Well

Depth to Water Level 9.29 ft. below measuring point. (before sampling) Well Construction

Measuring point is 0.67 feet above land surface Other

Gallons of water pumped bailed before sampling 6

Field Analysis: pH ( ) Specific Conductance ____ uMhos Temp. ____ °C Odor ____ Appearance ____

Date Sample Collected 11/07/85 Date Lab Sample Analyzed 11/07/85

Laboratory Name Environment 1 Certification No. 10

COD	779 mg/l	NO_2 as N	mg/l	Ni - Nickel	mg/l
Coliform: MF Fecal	/100ml	NO_3 as N	mg/l	Pb - Lead	mg/l
Coliform: MF Total	/100ml	Phosphorus: Total as P	mg/l	Zn - Zinc	mg/l
Dissolved Solids: Total	mg/l	Al - Aluminum	mg/l	Pesticides/Herbicides (Specify Compounds)	
pH (when analyzed)	6.6 units	Ba - Barium	mg/l		ug/l
TOC	mg/l	Ca - Calcium	mg/l		ug/l
Chloride	mg/l	Cd - Cadmium	mg/l		ug/l
Arsenic	mg/l	Chromium: Total	mg/l	Other (Specify)	ug/l
Grease and Oils	mg/l	Cu - Copper	mg/l	Total Residue 2110 mg/l	ug/l
Hardness: Total	mg/l	Fe - Iron	32,400 mg/l	Antimony 16	ug/l
Phenol	mg/l	Hg - Mercury	mg/l		ug/l
Sulfate	mg/l	K - Potassium	mg/l		ug/l
Specific Conductance	uMhos	Mg - Magnesium	3,070 mg/l		ug/l
Total Ammonia(NH_3 + NH_4)	mg/l	Mn - Manganese	1,620 mg/l		
TKN as N	mg/l	Na - Sodium	mg/l		

I CERTIFY THAT THIS REPORT IS TRUE AND ACCURATE.

[signature] 12/12/85

SIGNATURE OF PERMITTEE (OR AUTHORIZED AGENT*) DATE

Note:

Values should reflect total concentrations

* See back for instructions.

** Submit blue and green copies to address above.

GW-59 Revised 7/85

COMPLIANCE MONITORING REPORT FORM

Environmental Management Division
Groundwater Section
P.O. Box 27687
Raleigh, N.C. 27611
(919)733-5083

Facility Name: Kentec, Inc.
Address: Rt. 3, Box 116
Grifton, NC 28530
Well Location: Approximately ½ mile, in back of field
Well Identification Number: #3 Well Depth: 54 Ft.
Well Diameter: 2" Sample (Screened) Interval: 44 Ft. To: 54 Ft.
Depth to Water Level: 5.88 ft. below measuring point. (before sampling)
Measuring point is: 1.58 feet above land surface
Gallons of water pumped bailed before sampling: 7

County: Lenoir
Permit Number: 7210
Non-Discharge: X
NPDES:
Water Use:
Injection Well:
Well Construction:
Other:

Field Analysis: pH _____ Specific Conductance _____ uMhos Temp. _____ °C Odor _____ Appearance _____
Date Sample Collected: 11/07/85 Date Lab Sample Analyzed: 11/07/85
Laboratory Name: Environment 1 Certification No.: 10

COD	32 mg/l	NO_2 as N	mg/l	Ni - Nickel	mg/l
Coliform: MF Fecal	/100ml	NO_3 as N	mg/l	Pb - Lead	mg/l
Coliform: MF Total	/100ml	Phosphorus: Total as P	mg/l	Zn - Zinc	mg/l
Dissolved Solids: Total	mg/l	Al - Aluminum	mg/l	Pesticides/Herbicides (Specify Compounds)	
pH (when analyzed)	7.4 units	Ba - Barium	mg/l		ug/l
TOC	mg/l	Ca - Calcium	mg/l		ug/l
Chloride	mg/l	Cd - Cadmium	mg/l		ug/l
Arsenic	mg/l	Chromium: Total	mg/l	Other (Specify)	ug/l
Grease and Oils	mg/l	Cu - Copper	mg/l	Total Residue 645 mg/l	ug/l
Hardness: Total	mg/l	Fe - Iron	44 mg/l	Antimony <1	ug/l
Phenol	mg/l	Hg - Mercury	mg/l		ug/l
Sulfate	mg/l	K - Potassium	mg/l		ug/l
Specific Conductance	uMhos	Mg - Magnesium	6,630 mg/l		ug/l
Total Ammonia(NH_3 + NH_4)	mg/l	Mn - Manganese	26 mg/l		
TKN as N	mg/l	Na - Sodium	mg/l		

Note:
Values should reflect total concentrations

I CERTIFY THAT THIS REPORT IS TRUE AND ACCURATE.

[signature] 12/16/85
SIGNATURE OF PERMITTEE (OR AUTHORIZED AGENT *) DATE

* See back for instructions.
** Submit blue and green copies to address above.

GW-59 Revised 7/85

COMPLIANCE MONITORING REPORT FORM

Environmental Management Division
Groundwater Section
P.O. Box 27687
Raleigh,N.C. 27611
(919)733-5083

Facility Name Coutec, Inc. County Lenoir

Address Rt. 3, Box 110 Permit Number: 7210

Griftom, NC 28530 Non-Discharge Y

Well Location 100' to left of gate NPDES

Well Identification Number #2 Well Depth 54.5 Ft. Water Use

Well Diameter 2" Sample (Screened) Interval 44 Ft. To 54 Ft. Injection Well

Depth to Water Level 2.57 ft. below measuring point. (before sampling) Well Construction

Measuring point is 1.57 feet above land surface Other

Gallons of water pumped bailed before sampling 11

Field Analysis: pH _____ Specific Conductance _____ uMhos Temp. _____ °C Odor _____ Appearance _____

Date Sample Collected 11/07/85 Date Lab Sample Analyzed 11/07/85

Laboratory Name Environment 1 Certification No. 10

COD	20 mg/l	NO_2 as N	mg/l	Ni - Nickel	mg/l
Coliform: MF Fecal	/100ml	NO_3 as N	mg/l	Pb - Lead	mg/l
Coliform: MF Total	/100ml	Phosphorus: Total as P	mg/l	Zn - Zinc	mg/l
Dissolved Solids: Total	mg/l	Al - Aluminum	mg/l	Pesticides/Herbicides (Specify Compounds)	
pH (when analyzed)	7.5 units	Ba - Barium	mg/l		ug/l
TOC	mg/l	Ca - Calcium	mg/l		ug/l
Chloride	mg/l	Cd - Cadmium	mg/l		ug/l
Arsenic	mg/l	Chromium: Total	mg/l	Other (Specify)	ug/l
Grease and Oils	mg/l	Cu - Copper	mg/l	Total Residue 332 mg/l	ug/l
Hardness: Total	mg/l	Fe - Iron	40 mg/l	Antimony <1	ug/l
Phenol	mg/l	Hg - Mercury	mg/l		ug/l
Sulfate	mg/l	K - Potassium	mg/l		ug/l
Specific Conductance	uMhos	Mg - Magnesium	5,050 mg/l		ug/l
Total Ammonia(NH_3 + NH_4)	mg/l	Mn - Manganese	<10 mg/l		
TKN as N	mg/l	Na - Sodium	mg/l		

I CERTIFY THAT THIS REPORT IS TRUE AND ACCURATE.

SIGNATURE OF PERMITTEE (OR AUTHORIZED AGENT*) DATE

Note:
Values should reflect total concentrations

* See back for instructions

** Submit blue and green copies to address above.

GW-59 Revised 7/85

Environment 1, Incorporated

BOX 7085
GREENVILLE, N.C. 27834

114 OAKMONT DRIVE
PHONE (919) 756-6208

Pitt Co.

PERMIT NO. 7210

KENTEC, INC.

Results of analyses for samples collected 11/07/85.

Sampling Location	Monthly				Quarterly (Aug, Nov, Feb, May)	
INFLUENT	pH	12.3	Units		Iron	0.42 mg/l
	COD	52,100	mg/l		Magnesium	0.57 mg/l
	TSR	17	mg/l		Manganese	15.8 mg/l
	TR	9450	mg/l		Antimony	96.0 mg/l
EFFLUENT	pH	7.1	Units		Iron	9.9 mg/l
	COD	12400	mg/l		Magnesium	0.50 mg/l
	TSR	908	mg/l		Manganese	15.0 mg/l
	TR	5170	mg/l		Antimony	500 mg/l
AERATION INFLUENT	pH	6.9	Units		Iron	1.74 mg/l
	TR	4980	mg/l		Magnesium	0.68 mg/l
	TSR	274	mg/l		Manganese	15.8 mg/l
					Antimony	45.0 mg/l
WELL #1 (Beside drain field)	pH	6.6	Units	Water Depth	Iron	32.4 mg/l
	COD	779	mg/l		Magnesium	3.07 mg/l
	TR	2110	mg/l	9.29 ft.	Manganese	1.62 mg/l
					Antimony	0.016 mg/l
WELL #2 (Beside creek)	pH	7.5	Units	Water Depth	Iron	0.04 mg/l
	COD	20	mg/l		Magnesium	6.05 mg/l
	TR	332	mg/l	2.67 ft.	Manganese	<0.01 mg/l
					Antimony	<0.00 mg/l
WELL #3 (Background well)	pH	7.4	Units	Water Depth	Iron	0.044 mg/l
	COD	32	mg/l		Magnesium	6.63 mg/l
	TR	645	mg/l	5.88 ft.	Manganese	0.026 mg/l
					Antimony	<0.00 mg/l

Average Daily Flow, GPD

Week 1	1465
Week 2	2539
Week 3	1232
Week 4	166
Week 5	

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GROUND WATER SECTION
RALEIGH, N. C.

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JAN 15 1986
P.E.M.C.

COMPLIANCE MONITORING REPORT FORM

Environmental Management Division
Groundwater Section
P.O. Box 27687
Raleigh, N.C. 27611
(919)733-5083

Facility Name ~~Kontee, INC.~~ James Enterprise
Address Route 3, Box 116
Griffon NC 28530
Well Location 150' to left of gate
Well Identification Number Well #1 Well Depth 9.58 Ft.
Well Diameter 2" Sample (Screened) Interval 4.5 Ft. To 9.5 Ft.
Depth to Water Level 3.31 ft. below measuring point. (before sampling)
Measuring point is 0.67 feet above land surface
Gallons of water pumped bailed before sampling 6

County Lenoir
Permit Number: 7210
Non-Discharge x
NPDES
Water Use
Injection Well
Well Construction
Other

Field Analysis: pH _____ Specific Conductance _____ uMhos Temp. _____ °C Odor _____ Appearance _____
Date Sample Collected 1-9-86 Date Lab Sample Analyzed 1-9-86
Laboratory Name Environment I Certification No. 10

COD	1,200 mg/l	NO_2 as N (D)	mg/l	Ni - Nickel (D)	ug/l
Coliform: MF Fecal	/100ml	NO_3 as N (D)	mg/l	Pb - Lead (D)	ug/l
Coliform: MF Total	/100ml	Phosphorus: Total as P	mg/l	Zn - Zinc (D)	ug/l
Dissolved Solids: Total	mg/l	Al - Aluminum (D)	ug/l	Pesticides/Herbicides (Specify Compounds)	
pH (when analyzed)	6.5 units	Ba - Barium (D)	ug/l		ug/l
TOC	mg/l	Ca - Calcium (D)	mg/l		ug/l
Chloride (D)	mg/l	Cd - Cadmium (D)	ug/l		ug/l
Arsenic (D)	ug/l	Chromium: Total (D)	ug/l	Other (Specify)	ug/l
Grease and Oils	mg/l	Cu - Copper (D)	ug/l		ug/l
Hardness: Total (D)	mg/l	Fe - Iron (D)	ug/l	Total Residue 2,320 mg/l	ug/l
Phenol	ug/l	Hg - Mercury (D)	ug/l		ug/l
Sulfate (D)	mg/l	K - Potassium (D)	ug/l		ug/l
Specific Conductance	uMhos	Mg - Magnesium (D)	mg/l		ug/l
Total Ammonia(NH_3 + NH_4)(D)	mg/l	Mn - Manganese (D)	ug/l		
TKN as N (D)	mg/l	Na - Sodium (D)	mg/l		

D = Dissolved Analysis — Submit Filtered Sample

I CERTIFY THAT THIS REPORT IS TRUE AND ACCURATE.

[signature] 2-24-86

SIGNATURE OF PERMITTEE OR AUTHORIZED AGENT DATE

* See back for instructions

** Submit blue and green copies to address above.

GW-59

COMPLIANCE MONITORING REPORT FORM

Environmental Management Division
Groundwater Section
P.O. Box 27687
Raleigh,N.C. 27611
(919)733-5083

Facility Name ~~Keaton, Inc.~~ James [illegible]
County Lenoir

Address Route 3, Box 116
Permit Number: 7310[illegible]

Crifton NC 28530
Non-Discharge X

Well Location [illegible]
NPDES

Well Identification Number Well #2 Well Depth 54.5 Ft.
Water Use

Well Diameter 2" Sample (Screened) Interval 14 Ft. To 54 Ft.
Injection Well

Depth to Water Level 5.94 ft. below measuring point. (before sampling)
Well Construction

Measuring point is 1.67 feet above land surface
Other

Gallons of water pumped bailed before sampling 12

Field Analysis: pH ______ Specific Conductance ______ uMhos Temp. ______ °C Odor ______ Appearance ______

Date Sample Collected 1-2-86 Date Lab Sample Analyzed 1-9-86

Laboratory Name Environment I Certification No. 10

COD	215 mg/l	NO_2 as N	mg/l	Ni - Nickel	mg/l
Coliform: MF Fecal	/100ml	NO_3 as N	mg/l	Pb - Lead	mg/l
Coliform: MF Total	/100ml	Phosphorus: Total as P	mg/l	Zn - Zinc	mg/l
Dissolved Solids: Total	mg/l	Al - Aluminum	mg/l	Pesticides/Herbicides (Specify Compounds)	
pH (when analyzed)	7.4 units	Ba - Barium	mg/l		ug/l
TOC	mg/l	Ca - Calcium	mg/l		ug/l
Chloride	mg/l	Cd - Cadmium	mg/l		ug/l
Arsenic	mg/l	Chromium: Total	mg/l	Other (Specify)	ug/l
Grease and Oils	mg/l	Cu - Copper	mg/l		ug/l
Hardness: Total	mg/l	Fe - Iron	mg/l	Total Residue 236 mg/l	ug/l
Phenol	mg/l	Hg - Mercury	mg/l		ug/l
Sulfate	mg/l	K - Potassium	mg/l		ug/l
Specific Conductance	uMhos	Mg - Magnesium	mg/l		ug/l
Total Ammonia(NH_3 + NH_4)	mg/l	Mn - Manganese	mg/l		
TKN as N	mg/l	Na - Sodium	mg/l		

Note:

Values should reflect total concentrations

I CERTIFY THAT THIS REPORT IS TRUE AND ACCURATE.

[signature] 2-24-86

SIGNATURE OF PERMITTEE (OR AUTHORIZED AGENT *) DATE

* See back for instructions

** Submit blue and green copies to address above.

COMPLIANCE MONITORING REPORT FORM

Environmental Management Division
Groundwater Section
P.O. Box 27687
Raleigh,N.C. 27611
(919)733-5083

Facility Name: Kentec, Inc.
Address: Route 3, Box 116
Grifton NC 28530
County: Lenoir
Permit Number: 7210
Non-Discharge: X
NPDES:
Water Use:
Injection Well:
Well Construction:
Other:

Well Location: Approx. ½ mile in back of field
Well Identification Number: Well #3 Well Depth: 54 Ft.
Well Diameter: 2" Sample (Screened) Interval: 44 Ft. To: 54 Ft.
Depth to Water Level: 9.38 ft. below measuring point. (before sampling)
Measuring point is: 1.58 feet above land surface
Gallons of water pumped bailed before sampling: 10
Field Analysis: pH _____ Specific Conductance _____ uMhos Temp. _____ °C Odor _____ Appearance _____
Date Sample Collected: 1-9-86 Date Lab Sample Analyzed: 1-9-86
Laboratory Name: ENV. MGMT I Certification No.: 10

COD: 50	mg/l	NO_2 as N (D)	mg/l	Ni - Nickel (D)	ug/l
Coliform: MF Fecal	/100ml	NO_3 as N (D)	mg/l	Pb - Lead (D)	ug/l
Coliform: MF Total	/100ml	Phosphorus: Total as P	mg/l	Zn - Zinc (D)	ug/l
Dissolved Solids: Total	mg/l	Al - Aluminum (D)	ug/l	Pesticides/Herbicides (Specify Compounds)	
pH (when analyzed): 7.4	units	Ba - Barium (D)	ug/l		ug/l
TOC	mg/l	Ca - Calcium (D)	mg/l		ug/l
Chloride (D)	mg/l	Cd - Cadmium (D)	ug/l		ug/l
Arsenic (D)	ug/l	Chromium: Total (D)	ug/l	Other (Specify)	ug/l
Grease and Oils	mg/l	Cu - Copper (D)	ug/l		ug/l
Hardness: Total (D)	mg/l	Fe - Iron (D)	ug/l	TOTAL RESIDUE 572 mg/l	ug/l
Phenol	ug/l	Hg - Mercury (D)	ug/l		ug/l
Sulfate (D)	mg/l	K - Potassium (D)	ug/l		ug/l
Specific Conductance	uMhos	Mg - Magnesium (D)	mg/l		ug/l
Total Ammonia(NH_3 + NH_4)(D)	mg/l	Mn - Manganese (D)	ug/l		
TKN as N (D)	mg/l	Na - Sodium (D)	mg/l		

D = Dissolved Analysis – Submit Filtered Sample

I CERTIFY THAT THIS REPORT IS TRUE AND ACCURATE.

[signature] 3-24-86

SIGNATURE OF PERMITTEE OR AUTHORIZED AGENT — DATE

* See back for instructions

** Submit blue and green copies to address above.

GW-59

COMPLIANCE MONITORING REPORT FORM

Environmental Management Division
Groundwater Section
P.O. Box 27687
Raleigh, N.C. 27611
(919)733-5083

Facility Name KENTEC, INC. County LENOIR

Address ROUTE 3, BOX 116 Permit Number: 7210

GRIFTON, NC 28530 Non-Discharge X

Well Location 150' TO LEFT OF GATE NPDES

Well Identification Number WELL # 1 Well Depth 9.58 Ft. Water Use

Well Diameter 2" Sample (Screened) Interval 4.5 Ft. To 9.5 Ft. Injection Well

Depth to Water Level 2.60 ft. below measuring point. (before sampling) Well Construction

Measuring point is 0.67 feet above land surface Other

Gallons of water pumped bailed before sampling 6

Well shows 3/20 CONTAMINATION - Ask company to resample & if same, 4 options well at this site & screened deeper, is necessary. RSC

Field Analysis: pH _____ Specific Conductance _____ uMhos Temp. _____ °C Odor _____ Appearance _____

Date Sample Collected 2-17-86 Date Lab Sample Analyzed 2-17-86

Laboratory Name ENVIRONMENT I Certification No. 10

COD	811 mg/l	NO_2 as N (D)	mg/l	Ni - Nickel (D)	ug/l
Coliform: MF Fecal	/100ml	NO_3 as N (D)	mg/l	Pb - Lead (D)	ug/l
Coliform: MF Total	/100ml	Phosphorus: Total as P	mg/l	Zn - Zinc (D)	ug/l
Dissolved Solids: Total	mg/l	Al - Aluminum (D)	ug/l	Pesticides/Herbicides (Specify Compounds)	
pH (when analyzed)	6.5 units	Ba - Barium (D)	ug/l		ug/l
TOC	mg/l	Ca - Calcium (D)	mg/l		ug/l
Chloride (D)	mg/l	Cd - Cadmium (D)	ug/l		ug/l
Arsenic (D)	ug/l	Chromium: Total (D)	ug/l	Other (Specify)	ug/l
Grease and Oils	mg/l	Cu - Copper (D)	ug/l		ug/l
Hardness: Total (D)	mg/l	Fe - Iron (D)	14,300 ug/l	TOTAL RESIDUE 1780 mg/l	ug/l
Phenol	ug/l	Hg - Mercury (D)	ug/l	ANTIMONY 5.8	ug/l
Sulfate (D)	mg/l	K - Potassium (D)	ug/l		ug/l
Specific Conductance	uMhos	Mg - Magnesium (D)	453 mg/l		ug/l
Total Ammonia(NH_3 + NH_4)(D)	mg/l	Mn - Manganese (D)	733 ug/l		
TKN as N (D)	mg/l	Na - Sodium (D)	mg/l		

D = Dissolved Analysis — Submit Filtered Sample

I CERTIFY THAT THIS REPORT IS TRUE AND ACCURATE.

Stephen Glover 3/18/86

SIGNATURE OF PERMITTEE OR AUTHORIZED AGENT DATE

* See back for instructions

** Submit blue and green copies to address above.

GW-59

COMPLIANCE MONITORING REPORT FORM

Environmental Management Division
Groundwater Section
P.O. Box 27687
Raleigh, N.C. 27611
(919)733-5083

Facility Name KENTEC, INC. County LENOIR

Address ROUTE 3, BOX 116 Permit Number: 7210
GRIFTON NC 28530

Non-Discharge

NPDES

Water Use

Injection Well

Well Construction

Other

Well Location 100' TO LEFT OF GATE

Well Identification Number WELL # 2 Well Depth 54.5 Ft.

Well Diameter 2" Sample (Screened) Interval 44 Ft. To 54 Ft.

Depth to Water Level 5.71 ft. below measuring point. (before sampling)

Measuring point is 1.67 feet above land surface

Gallons of water pumped bailed before sampling 12

This 3/20 well Too deep To be of Value - company needs To ABAW. + Replace with Shallower well RBC

Field Analysis: pH _____ Specific Conductance _____ uMhos Temp. _____ °C Odor _____ Appearance _____

Date Sample Collected 2-17-86 Date Lab Sample Analyzed 2-17-86

Laboratory Name ENVIRONMENT I Certification No. 10

COD 44	mg/l	NO_2 as N (D)	mg/l	Ni - Nickel (D)	ug/l
Coliform: MF Fecal	/100ml	NO_3 as N (D)	mg/l	Pb - Lead (D)	ug/l
Coliform: MF Total	/100ml	Phosphorus: Total as P	mg/l	Zn - Zinc (D)	ug/l
Dissolved Solids: Total	mg/l	Al - Aluminum (D)	ug/l	Pesticides/Herbicides (Specify Compounds)	
pH (when analyzed) 7.7	units	Ba - Barium (D)	ug/l		ug/l
TOC	mg/l	Ca - Calcium (D)	mg/l		ug/l
Chloride (D)	mg/l	Cd - Cadmium (D)	ug/l		ug/l
Arsenic (D)	ug/l	Chromium: Total (D)	ug/l	Other (Specify)	ug/l
Grease and Oils	mg/l	Cu - Copper (D)	ug/l		ug/l
Hardness: Total (D)	mg/l	Fe - Iron (D) 59	ug/l	TOTAL RESIDUE 327 mg/l	ug/l
Phenol	ug/l	Hg - Mercury (D)	ug/l	ANTIMONY <1	ug/l
Sulfate (D)	mg/l	K - Potassium (D)	ug/l		ug/l
Specific Conductance	uMhos	Mg - Magnesium (D) 10.0	mg/l		ug/l
Total Ammonia(NH_3 + NH_4)(D)	mg/l	Mn - Manganese (D) <10	ug/l		
TKN as N (D)	mg/l	Na - Sodium (D)	mg/l		

D = Dissolved Analysis – Submit Filtered Sample

I CERTIFY THAT THIS REPORT IS TRUE AND ACCURATE.

[signature] 3/18/86

SIGNATURE OF PERMITTEE OR AUTHORIZED AGENT DATE

* See back for instructions

** Submit blue and green copies to address above.

GW-59

COMPLIANCE MONITORING REPORT FORM

Environmental Management Division
Groundwater Section
P.O. Box 27687
Raleigh,N.C. 27611
(919)733-5083

Facility Name KENTEC, INC. County LENOIR

Address ROUTE3, BOX 116 Permit Number: 7210

GRIFTON NC 28530 Non-Discharge X

Well Location APPROX. ½ MILE IN BACK OF FIELD NPDES

Well Identification Number WELL #3 Well Depth 54 Ft. Water Use

Well Diameter 2" Sample (Screened) Interval 44 Ft. To 54 Ft. Injection Well

Depth to Water Level 9.15 ft. below measuring point. (before sampling) Well Construction

Measuring point is 1.58 feet above land surface Other

Gallons of water pumped bailed before sampling 10

This well too deep To be of use — please notify Co. To Abandon & replace with a shallower well 3/20 RBC

Field Analysis: pH _____ Specific Conductance _____ uMhos Temp. _____ °C Odor _____ Appearance _____

Date Sample Collected 2-17-86 Date Lab Sample Analyzed 2-17-86

Laboratory Name ENVIRONMENT I Certification No. 10

COD	52 mg/l	NO_2 as N (D)	mg/l	Ni - Nickel (D)	ug/l
Coliform: MF Fecal	/100ml	NO_3 as N (D)	mg/l	Pb - Lead (D)	ug/l
Coliform: MF Total	/100ml	Phosphorus: Total as P	mg/l	Zn - Zinc (D)	ug/l
Dissolved Solids: Total	mg/l	Al - Aluminum (D)	ug/l	Pesticides/Herbicides (Specify Compounds)	
pH (when analyzed)	7.5 units	Ba - Barium (D)	ug/l		ug/l
TOC	mg/l	Ca - Calcium (D)	mg/l		ug/l
Chloride (D)	mg/l	Cd - Cadmium (D)	ug/l		ug/l
Arsenic (D)	ug/l	Chromium: Total (D)	ug/l	Other (Specify)	ug/l
Grease and Oils	mg/l	Cu - Copper (D)	ug/l		ug/l
Hardness: Total (D)	mg/l	Fe - Iron (D)	ug/l	TOTAL RESIDUE 573 mg/l	ug/l
Phenol	ug/l	Hg - Mercury (D)	ug/l	ANTIMONY <1	ug/l
Sulfate (D)	mg/l	K - Potassium (D)	ug/l		ug/l
Specific Conductance	uMhos	Mg - Magnesium (D)	<10 mg/l		ug/l
Total Ammonia(NH_3 + NH_4)(D)	mg/l	Mn - Manganese (D)	<10 ug/l		
TKN as N (D)	mg/l	Na - Sodium (D)	mg/l		

D = Dissolved Analysis — Submit Filtered Sample

I CERTIFY THAT THIS REPORT IS TRUE AND ACCURATE.

[signature] 3/18/86

SIGNATURE OF PERMITTEE OR AUTHORIZED AGENT DATE

* See back for instructions

** Submit blue and green copies to address above.

GW-59

Hold for Instruction from H.Q. 10/10/86

Lenoir

State of North Carolina
Department of Natural Resources and Community Development
Division of Environmental Management
512 North Salisbury Street • Raleigh, North Carolina 27611

James G. Martin, Governor
S. Thomas Rhodes, Secretary

March 28, 1986

R. Paul Wilms
Director

Mr. N. A. Ferrante, Plant Manager
E. I. du Pont de Nemours and Company, Inc.
Post Office Box 800
Kinston, N. C. 28501

SUBJECT: Amendment to Permit No. 12725
E. I. du Pont de Nemours & Company, Inc.
~~Kentec, Inc.~~
Pump and Haul Wastewater Disposal
Lenoir County

Dear Mr. Ferrante:

In accordance with a letter received March 7, 1986, we are hereby amending Permit No. 12725, to include the following changes.

Condition No. 6 is hereby replaced in its entirety with the following: "An application with plans and specifications for the construction of a permanent treatment and disposal scheme shall be submitted to the Division by November 30, 1986. The proposed system shall be operational by August 31, 1987, with all wastewater transport terminated by this date."

Condition No. 15 is hereby replaced in its entirety with the following: "After modications to the Kinston Du Pont plant, the subject rinse water shall be transported to New Jersey by rail. Any other mode of transportation must be approved by the Washington Regional Office, telephone No. 919/946-6481."

This permit amendment does not alter any other conditions or limitations specified in Permit No. 12725 issued February 4, 1986.

APR 1986 CENTRAL FILE COPY

If you have any questions or need additional information concerning this matter, please contact Mr. Donald Safrit, telephone No. 919/733-5083.

Sincerely yours,

for R. Paul Wilms

cc: Lenoir County Health Department
Dennis R. Ramsey
Washington Regional Office

DS/jp

ARH

State of North Carolina
Department of Natural Resources and Community Development
Division of Environmental Management
512 North Salisbury Street • Raleigh, North Carolina 27611

James G. Martin, Governor
S. Thomas Rhodes, Secretary

R. Paul Wilms
Director

March 13, 1986

M E M O R A N D U M

TO: Mr. Roger Thorpe, Regional Engineer
Washington Regional Office

THROUGH: Mr. Arthur Mouberry, Supervisor
Permits and Engineering Unit

FROM: Mr. Gil Vinzani, Leader
State Engineering Review Group

SUBJECT: Permit No. 12725
E.I. du Pont de Nemours & Ca, Inc.
Kentec, Inc.
Pump and Haul Wastewater Disposal
Lenoir Company

Attached is a letter received March 7, 1986, from Du Pont requesting changes to two (2) conditions within the subject permit.

Condition No. 6 sets a schedule for our review and permitting procedures for the new distillation system. This schedule allows ample time since Du Pont has known that their present system was failing and would need to be replaced. Current policy for pump and haul permits is for a maximum of six (6) months.

Conditon No. 15 requires Du Pont to ship the waste by rail from Kinston to Chambers Works facility in Deepwater, New Jersey. In a telephone conversation on March 12, 1986, Mr. Henderson stated that the rail shipments were not ready due to complicating factors and the thirty (30) days were to allow Du Pont to prepare for rail shipment.

Mr. Henderson has requested a meeting to discuss the above changes and also the status of the proposed wastewater treatment and disposal system. Please indicate the day during the week of March 24-28 which would best accommodate your schedule to meet with Du Pont and ourselves in Raleigh.

If you have any questions or need additional information, please contact Mr. Donald Safrit.

ARH plant [illegible]

State of North Carolina
Department of Natural Resources and Community Development
Division of Environmental Management
512 North Salisbury Street • Raleigh, North Carolina 27611

James G. Martin, Governor
S. Thomas Rhodes, Secretary

R. Paul Wilms
Director

February 4, 1986

Mr. N.A. Ferrante, Plant Manager
E.I. du Pont de Nemours and Company, Inc.
P.O. Box 800
Kinston, N.C. 28501

SUBJECT: Permit No. 12725
E.I. du Pont de Nemours and Company, Inc.
Kentec, Inc.
Pump and Haul Wastewater Disposal
Lenoir County

Dear Mr. Ferrante:

In accordance with your application received October 15, 1985, we are forwarding herewith Permit No. 12725, dated February 4, 1986, to E.I. du Pont de Nemours and Company, Inc for the operation of the subject non-discharge type wastewater disposal system.

This permit shall be effective from the date of issuance until August 31, 1986, and shall be subject to the conditions and limitations as specified therein.

If any parts, requirements, or limitations contained in this permit are unacceptable to you, you have the right to an adjudicatory hearing before a hearing officer upon written demand to the Director within thirty (30) days following receipt of this permit, identifying the specific issues to be contended. Unless such demand is made, this permit shall be final and binding.

If you have any questions or need additional information concerning this matter, please contact Mr. Donald Safrit, telephone No. 919/733-5083, ext. 120.

Sincerely yours,

R. Paul Wilms
for

cc: Lenoir County Health Department
Washington Regional Supervisor
Mr. Dennis R. Ramsey
Mr. Gene Massey
Mr. Ed Post, N.J.D.E.P.

Pollution Prevention Pays

RPW/DS/ad

NORTH CAROLINA

ENVIRONMENTAL MANAGEMENT COMMISSION

RALEIGH

P E R M I T

For the Discharge of Sewage, Industrial Wastes, or Other Wastes

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In accordance with the provision of Article 21 of Chapter 143, General Statutes of North Carolina as amended, and other applicable Laws, Rules, and Regulations.

PERMISSION IS HEREBY GRANTED TO

E.I. du Pont de Nemours and Company, Inc.
Lenoir County

FOR THE

operation of a pump and haul disposal system consisting of the transport of approximately 1000 gallons per day of industrial wastewater from Kentec, Inc., located in Lenoir County, to the E.I. du Pont de Nemours' Chambers Works Wastewater Treatment Facility located in Deepwater, New Jersey,

pursuant to the application received October 15, 1985, and in conformity with the project plan, specifications, and other supporting data, subsequently filed and approved by the Department of Natural Resources and Community Development and considered a part of this permit.

This permit shall be effective from the date of issuance until August 31, 1986, and shall be subject to the following specified conditions and limitations:

1. This permit shall become voidable unless the facilities are operated in accordance with the approved plans, specifications and other supporting data.

2. This permit is effective only with respect to the nature and volume of wastes described in the application and other supporting data.

3. The facilities shall be properly maintained and operated at all times.

4. The industrial wastewater collected by this system shall be adequately treated in the E.I. du Pont de Nemours' Chambers Works Treatment Plant prior to being discharged into the receiving stream.

5. This permit is not transferable.

6. See 3/28/86 letter to Ferrante

6. An application with plans and specification for the construction of the distillation unit at Kentec, Inc. shall be received by this Division by May 1, 1986. The distillation unit shall be in place by August 31, 1986 and in working order with all wastewater transport terminated by this date.

7. The pump and haul disposal operations shall be discontinued upon construction and operation of the new wastewater treatment facility.

8. In the event that this operation fails to perform satisfactorily, the permittee shall take such immediate corrective measures as may be required by this Division.

9. Solids, sludges, or other pollutants removed or resulting from the wastewater storage facilities shall be contained and disposed of in such a manner as to prevent any contamination of the surface or groundwaters of the State.

10. E.I. du Pont de Nemours and Company, Inc. is liable for any damages caused by a spill or by failure of the pump and haul operations.

11. The issuance of this permit shall not relieve E.I. du Pont de Nemours and Company, Inc. of the responsibility for damages to surface or ground waters resulting from the operation of this facility.

12. The facilities shall be effectively maintained and operated as a non-discharge system to prevent the discharge of any wastewater into the surface waters of the State.

13. Adequate inspection, maintenance, and cleaning shall be provided by the permittee to insure proper operation of the subject facilities.

14. An accurate record must be maintained by the Permittee indicating the following information:
    (a) Date holding facility pumped
    (b) Volume of wastewater pumped

    The records shall be available for inspection and review at the Kentec Plant Office.

15. [redacted]

See 3-28-86 letter to Ferrante

Permit issued this the 4th day of February, 1986.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

for R. Paul Wilms, Director
Division of Environmental Management
By Authority of the Environmental Management Commission

DIVISION OF ENVIRONMENTAL MANAGEMENT

September 11, 1985

Mr. R.H. Glossip
James Enterprises
Route 3, Box 118
Grifton, North Carolina 28530

Dear Mr. Glossip:

In accordance with Permit #7210 issued on March 3, 1982, Condition #9 requires monitoring of the groundwaters at your wastewater treatment facility site. In order to standardize reporting of the results of analysis of groundwater samples, the Division has developed the enclosed form for your use. The form has three colored sheets for each well sampled. The white sheet is for your files; the blue and green sheets are to be mailed to the Raleigh address at the top.

Your facility is required to perform the tests on Table I enclosed. Sampling of the monitor wells is to be completed as per the schedule in the July 1, 1982 monitoring requirement letter from W. Lee Fleming, Jr. The results of the analyses shall be mailed to Raleigh within 30 days of the sampling.

Please contact me if I can be of any help with these requirements. The regional office can assist in selection of sampling equipment, techniques, and can advise you of state certified laboratories.

Sincerely,

RRP

Richard R. Powers
Hydrogeological Technician

RRP:mgr
Enclosures
cc: Files ✓

TABLE I

PARAMETER	FREQUENCY
Biochemical Oxygen Demand	Monthly
Chemical Oxygen Demand	Monthly
Total Solids	Monthly
Iron	Quarterly
Magnesium	Quarterly
Manganese	Quarterly
Antimony	Quarterly

Please note that water levels below the top of the well casing shall be measured monthly.

DIVISION OF ENVIRONMENTAL MANAGEMENT

July 1, 1982

Mr. Robert M. Glossip, General Manager
James Enterprises
Route 3, Box 116
Grifton, N. C. 28530

Subject: Monitoring Requirements
Permit No. 7210
James Enterprises
Pitt County

Dear Mr. Glossip:

James Enterprises was issued Permit No. 7210 on March 3, 1982, for the construction and operation of an industrial wastewater treatment facility. Condition #9 of this permit states: "The permittee shall provide and maintain monitoring facilities and a groundwater monitoring program such as may be required by the Division of Environmental Management and submit monitoring reports on a regular basis to the Division." A minimum of three (3) wells shall be monitored along with the treatment works in accordance with the following schedule:

Parameter	Frequency	Sample Type	Locations
Flow	Daily	Continuous	Influent
Biochemical Oxygen Demand, 5-day, 20°C	Monthly	Grab	Influent, effluent, and wells
Chemical Oxygen Demand	Monthly	Grab	Influent, effluent, and wells
Total Suspended Solids	Monthly	Grab	Influent, wet well, and effluent
Total Solids	Monthly	Grab	Influent, wet well, effluent, and wells
Metals	Quarterly	Grab	Influent, wat well, effluent, and wells
Iron			
Magnesium			
Manganese			
Antimony			

The data shall be submitted to the Division of Environmental Management monthly in accordance with Regulation 2B .0500 which requires that reports be filed on State-issued forms within 45 days following the end of each reporting period. Monitoring shall start with the first full month after treatment begins.

For additional assistance in locating the monitoring wells and developing a monitoring program, please contact Roger Thorpe, Washington Regional Office, telephone (919)946-6481.

Sincerely,

Original Signed By
W. LEE FLEMING, JR., for

Robert F. Helms
Director

cc: McDavid Associates, Inc.
Washington Regional Office
Dale Crisp

DIVISION OF ENVIRONMENTAL MANAGEMENT March 3, 1982

Mr. Robert H. Glossip, General Manager
James Enterprises
Route 3, Box 118
Grifton, North Carolina

SUBJECT: Permit No. 7210
James Enterprises
Industrial Wastewater
Treatment Facility
Lenoir County

Dear Mr. Glossip:

In accordance with your application received November 6, 1981, we are forwarding herewith Permit No. 7210, dated March 3, 1982, to James Enterprises for the construction and operation of the subject non-discharge type waste treatment facilities.

This permit shall be effective from the date of issuance until March 31, 1985, and shall be subject to the conditions and limitations as specified therein.

If any parts, requirements, or limitations contained in this permit are unacceptable to you, you have the right to an adjudicatory hearing before a hearing officer upon written demand to the Director within thirty (30) days following receipt of this permit, identifying the specific issues to be contended. Unless such demand is made, this permit shall be final and binding.

One (1) set of approved plans and specifications is being forwarded to you. If you have any questions or need additional information concerning this matter, please contact Mr. Richard B. Rohrbaugh, telephone No. 919/733-7120.

Sincerely yours,
Original Signed By
for W. LEE FLEMING, JR.
Robert F. Helms
Director

cc: Lenoir County Health Department
McDavid Associates, Incorporated
Mr. W. Lee Fleming, Jr.
Mr. Jim Mulligan
Washington Regional Office Manager

NORTH CAROLINA

ENVIRONMENTAL MANAGEMENT COMMISSION

DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT

RALEIGH

P E R M I T

For the Discharge of Sewage, Industrial Wastes, or Other Wastes

---

In accordance with the provisions of Article 21 of Chapter 143, General Statutes of North Carolina as amended, and other applicable Laws, Rules, and Regulations

PERMISSION IS HEREBY GRANTED TO

James Enterprises
Lenoir County

FOR THE

construction and operation of 2250 GPD industrial wastewater treatment facility consisting of (2) two-900 gallon septic tanks approximately 275 lineal feet of 6-inch gravity collection line, a 20 GPM pump station with dual pumps and high water alarm, approximately 35 lineal feet of 2-inch force main, a 10,000 gallon aeration chamber, dual 150 CFM blowers, an aerated sludge holding tank, clarifier, a 900 gallon effluent holding tank, approximately 1500 lineal feet of 4-inch drainage laterals in three (3) subsurface disposal fields with a total trench area of 4500 square feet, and all related piping, valves, and appurtenances to serve James Enterprises with no discharge of wastewater to the surface waters of the State,

pursuant to the application received November 6, 1981, and in conformity with the project plans, specifications, and other supporting data, subsequently filed and approved by the Department of Natural Resources and Community Development and considered a part of this Permit.

This Permit shall be effective from the date of issuance until March 31, 1985, and shall be subject to the following specified conditions and limitations:

1. This permit shall become voidable unless the facilities are constructed in accordance with the approved plans, specifications and other supporting data.

2. This permit is effective only with respect to the nature and volume of wastes described in the application and other supporting data.

3. The facilities shall be properly maintained and operated at all times.

4. This permit is not transferable.

5. This is a Class II Wastewater Treatment Plant and the person in responsible charge must hold a valid Grade II Certificate.

6. Diversion or bypassing of the untreated wastewater from the treatment facilities is prohibited and shall cause this Permit to become voidable.

7. Solids, sludges, or other pollutants removed or resulting from the wastewater treatment process shall be contained and disposed of as hazardous wastes. In the event that testing performed to the satisfaction of the Division of Environmental Management is conducted and indicates that wastes are of a non-hazardous nature, these wastes may be disposed of as directed by the Division upon submittal of a request package including sludge analysis.

8. James Enterprises' industrial wastewater treatment facility shall be effectively maintained and operated at all times so that there is no discharge to the surface waters nor any contamination of the ground waters which will render them unsatisfactory for normal use. In event the facilities fail to perform satisfactorily, including the creation of nuisance conditions, failure of the irrigation area to adequately absorb the wastewater, or failure of the treatment facilities to provide adequate solids removal, the Permittee shall take such immediate corrective action as may be required by the Division of Environmental Management.

9. The Permittee shall provide and maintain monitoring facilities and a ground water monitoring program such as may be required by the Division of Environmental Management and submit monitoring reports on a regular basis to the Division.

10. Mr. Jim Mulligan, Regional Supervisor (919/846-6481) shall be notified at least twenty-four (24) hours in advance of backfilling of the installed subsurface disposal system so that an in-place inspection can be made of said system prior to backfilling. Such notification to the Regional Supervisor shall be made during the normal office hours from 8:30 A.M. until 5:30 P.M. on Monday through Friday, excluding State Holidays.

11. The Permittee, at least six (6) months prior to the expiration of this Permit, shall request its extension. Upon receipt of the request, the Commission will review the adequacy of the facilities described therein, and if indicated, will extend the Permit for such period of time and under such conditions and limitations as it may deem appropriate.

12. This Permit does not relieve James Enterprises of the responsibility for any contamination of ground waters resulting from the wastewater treatment and disposal facility.

13. In the event that disposal field "A" fails to adequately absorb the wastewater, field "B" shall be placed in operation and tertiary filters shall be constructed and placed in operation prior to any discharge to disposal field "C"..

Permit issued this the 3rd day of March, 1982.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

Original Signed By

for W. LEE FLEMING, JR.

Robert F. Helms, Director
Division of Environmental Management
By Authority of the Environmental Management Commission

DIVISION OF ENVIRONMENTAL MANAGEMENT

February 11, 1983

Mr. Robert M. Glossip, General Manager
James Enterprises
Route 3, Box 118

SUBJECT: Amendment to Permit No. 7210
James Enterprises
Pump and Haul Disposal of Sludge
Lenoir County

Dear Mr. Glossip:

A letter of request for permit amendment was received January 31, 1983 from James Enterprises by the N.C. Division of Environmental Management for the subject project. The request has been reviewed and found to be satisfactory.

Permit No. 7210, dated March 3, 1982, is hereby amended to allow for the following one-time operation:

1. Remove and transport approximately 2000 gallons of industrial sludge from James Enterprise's existing treatment facility by means of a licensed septic tank service truck.

2. E. I. DuPont De Nemours and Company, Kinston Plant, has agreed by letter dated January 31, 1983 to dry the James Enterprise sludge by means of their existing sludge drying beds.

3. The dried sludge will be contained in fifty-five (55) gallons drums, transported back to James Enterprises for temporary storage, and analyzed to determine whether the dried slude is hazardous/toxic or not. This analysis will determine the final disposal location whether it be at a non-hazardous landfill or at the EPA approved hazardous landfill in Pinewood, South Carolina.

4. The Division of Environmental Management must be supplied a copy of the dried sludge analysis and a copy of the approval letter from the local landfill authority accepting the non-hazardous sludge.

James Enterprises is granted approval for this temporary sludge control on a one-time only basis with the following conditions or the permit amendment shall become voidable.

1. James Enterprises will submit an application package for approval by the Division for the construction and operation of a sludge dewatering system in order to be a self contained treatment system. The application package (construction plans and supporting documents) must be submitted within 45 working days of receipt of this latter.

2. James Enterprises shall notify Mr. Jim Mulligan, Regional Supervisor, of the Washington Regional Office at (919) 946-6481 twenty-four (24) hours in advance of the transportation of any sludge wet or dry.

3. The issuance of this permit shall not relieve James Enterprises of the responsibility for damages or an adverse effects to surface or ground water quality resulting from this operation.

This permit amendment shall be effective for the one-time only sludge disposal operation and no later than May 31, 1983. This permit shall not effect any of original permit's conditions, limitations, or expiration date.

If you have any questions or wish to discuss this matter further, please contact Mr. Jim Mulligan at this number (919) 946-6481 or Mr. H. Dale Crisp at this number (919) 733-5083 Ext. 108.

Sincerely yours,
Original Signed By
FORREST R. WESTALL
FOR
Robert F. Helms
Director

cc: Mr. Jim Mulligan ✓
Mr. Forrest Westall
Mr. E. L. Long

DIVISION OF ENVIRONMENTAL MANAGEMENT

July 1, 1982

Mr. Robert M. Glossip, General Manager
James Enterprises
Route 3, Box 116
Grifton, N. C. 28530

Subject: Monitoring Requirements
Permit No. 7210
James Enterprises
Pitt County

Dear Mr. Glossip:

James Enterprises was issued Permit No. 7210 on March 3, 1982, for the construction and operation of an industrial wastewater treatment facility. Condition #9 of this permit states: "The permittee shall provide and maintain monitoring facilities and a groundwater monitoring program such as may be required by the Division of Environmental Management and submit monitoring reports on a regular basis to the Division." A minimum of three (3) wells shall be monitored along with the treatment works in accordance with the following schedule:

Parameter	Frequency	Sample Type	Locations
Flow	Daily	Continuous	Influent
Biochemical Oxygen Demand, 5-day, 20°C	Monthly	Grab	Influent, effluent, and wells
Chemical Oxygen Demand	Monthly	Grab	Influent, effluent, and wells
Total Suspended Solids	Monthly	Grab	Influent, wet well, and effluent
Total Solids	Monthly	Grab	Influent, wet well, effluent, and wells
Metals	Quarterly	Grab	Influent, wet well, effluent, and wells
Iron			
Magnesium			
Manganese			
Antimony			

The data shall be submitted to the Division of Environmental Management monthly in accordance with Regulation 2B .0500 which requires that reports be filed on State-issued forms within 45 days following the end of each reporting period. Monitoring shall start with the first full month after treatment begins.

For additional assistance in locating the monitoring wells and developing a monitoring program, please contact Roger Thorpe, Washington Regional Office, telephone (919)946-6481.

Sincerely,

Original Signed By
W. LEE FLEMING, JR., for

Robert F. Helms
Director

cc: McDavid Associates, Inc.
Washington Regional Office ✓
Dale Crisp

North Carolina Department of Natural Resources & Community Development
James B. Hunt, Jr., Governor
James A. Summers, Secretary

ENVIRONMENTAL MANAGEMENT
Robert F. Helms
Director
Telephone 919 733-7015

January 10, 1984

Mr. Robert M. Glossip, General Manager
James Enterprises
Post Office Box 721
Greenville, North Carolina 27834

SUBJECT: Amendment to Permit No. 7210
James Enterprises
Wastewater Treatment Plant Modifications
Lenoir County

Dear Mr. Glossip:

A letter of request for permit amendment was received on December 16, 1983. The request and support documents have been reviewed and found to be satisfactory.

Permit No. 7210, dated March 3, 1982, is hereby amended to modify the wastewater treatment plant by removing the two existing 900 gallon septic tanks from service and adding a 2000 gallon surge tank, pH monitoring and adjustment equipment, a seven (7) square foot pressure filter, a 2000 gallon holding tank, and all related piping, valves, pumps, and appurtenances.

This permit amendment does not alter any conditions, limitations, or the expiration date of Permit No. 7210.

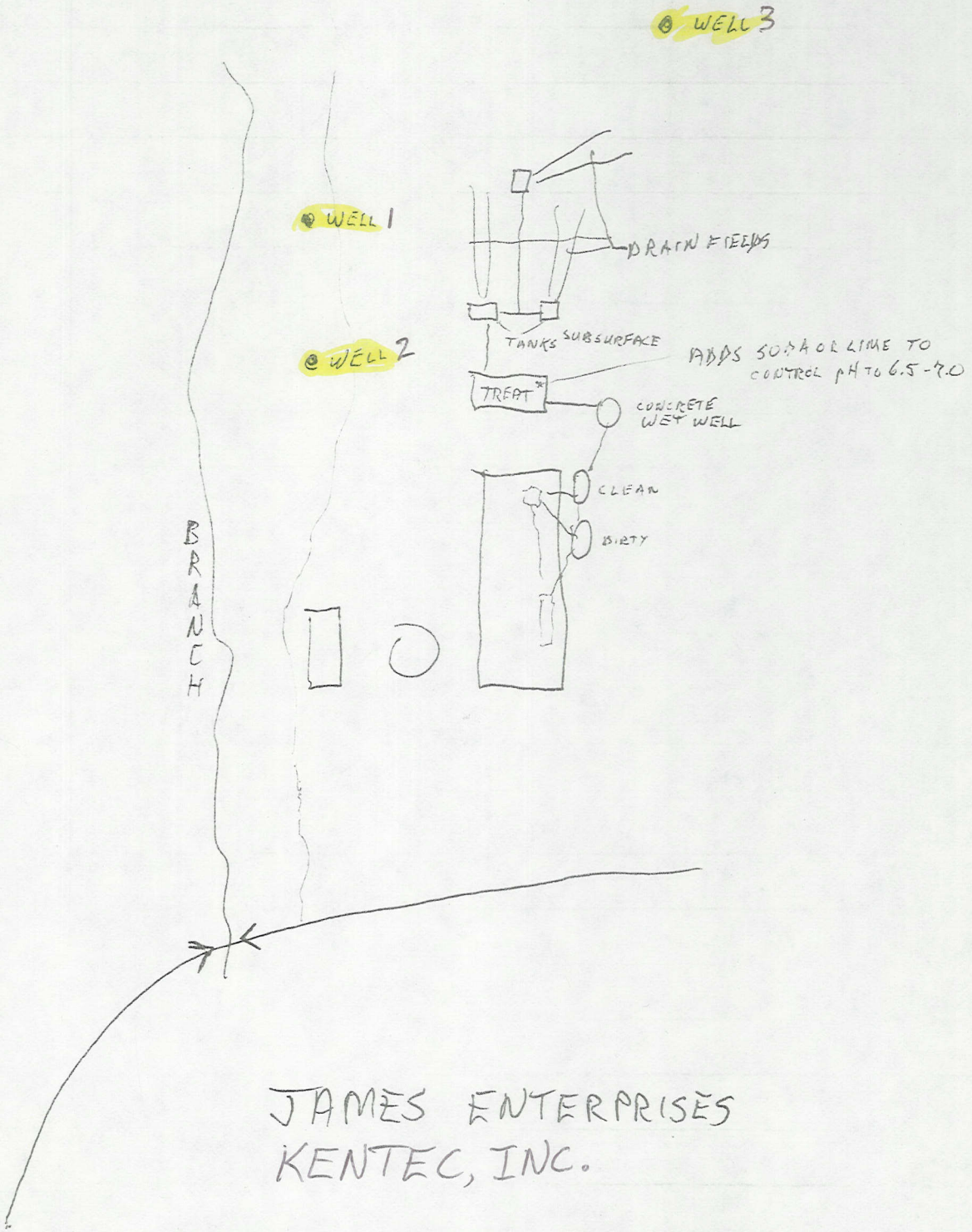
If you have any questions or need additional information concerning this matter, please contact Richard R. Rohrbaugh at 919/733-5083, extension 103.

Sincerely yours,

Original Signed By
FORREST R. WESTALL
FOR
Robert F. Helms

cc: Lenoir County Health Department
Mr. Forrest R. Westall
Washington Regional Supervisor
Washington Regional Manager

RRR/djb



JAMES ENTERPRISES
KENTEC, INC.

~~TR~~ [illegible]
~~TSR~~ [illegible]

James Enterprises Meeting
15 March, 1983, WaRO, 1000hrs

A) Sludge disposal (presently quaterly taken to Dupont WWTP sludge drying beds) - this is not an acceptable system - as Mr Long requested - what would be necessary to land apply - Jim M - no matter what system of sludge dewatering & disposal is proposed the company must prove system'll work & be enviro sound - since the system will be experimental will have to be 1st done on a pilot study -
Mr Long - proposed attemp at flocculate the sludge & use conventional dewatering bed - ask for 6 mo to try if not will propose to send to another Dupont Plant w/ St. approval.

B) Alton on Plant Ops & Monitoring

C) Monitor wells
alton - statement of goal of well net
we'll work out a time on putting in shallow wells (above clay)

they-re going to stay in contact Bobby'll get Vernon Jones (who put the ≈ 45-55' TD wells in) to grout the wells & develope properly - we'll have a man on site also we'll be with them for the replacement of the shallow wells (≤ 10ft)

Environment I, Incorporated

Wastewater Analyses – Environmental Consultants

PHONE (919) 756-[illegible]08
BOX 7085
GREENVILLE, N.C. 27[illegible]

JAMES ENTERPRISES, INC. Permit No. 7210

GRIFTON, NC

Results of analyses for samples collected January, 1983

Sampling Location	Monthly			Quarterly (Aug, Nov, Feb, May)
INFLUENT	BOD >64,000 mg/l	10 day BOD		Iron ____ mg/l
	COD 58,955 mg/l			Magnesium ____ mg/l
	TR 10,772 mg/l			Manganese ____ mg/l
	TSR 4,300 mg/l			Antimony ____ mg/l
EFFLUENT	BOD 8,000 mg/l	10 day BOD		Iron ____ mg/l
	COD 20,723 mg/l			Magnesium ____ mg/l
	TR 6,187 mg/l			Manganese ____ mg/l
	TSR 567 mg/l			Antimony ____ mg/l
WET WELL	TR 4,265 mg/l			Iron ____ mg/l
	TSR 214 mg/l			Magnesium ____ mg/l
				Manganese ____ mg/l
				Antimony ____ mg/l
WELL #1 (Beside drain field)	BOD <1.0 mg/l	Well Depth:		Iron ____ mg/l
	COD <15 mg/l	2.60 ft		Magnesium ____ mg/l
	TR 621 mg/l			Manganese ____ mg/l
				Antimony ____ mg/l
WELL #2 (Beside creek)	BOD 3.5 mg/l	Well Depth:		Iron ____ mg/l
	COD 96 mg/l			Magnesium ____ mg/l
	TR 1,573 mg/l	4.57 ft		Manganese ____ mg/l
				Antimony ____ mg/l
WELL #3 (Background well)	BOD 2.9 mg/l	Well Depth:		Iron ____ mg/l
	COD 129 mg/l			Magnesium ____ mg/l
	TR 2,817 mg/l	8.25 ft		Manganese ____ mg/l
				Antimony ____ mg/l

Average daily flow, GPD

Week 1 1,073

Week 2 1,191

Week 3 848

Week 4 2,355

Environment I, Incorporated

Wastewater Analyses – Environmental Consultants

PHONE (919) 756-6208
BOX 7085
GREENVILLE, N. C. 27834

JAMES ENTERPRISES, INC. Permit No. 7210

GRIFTON, NC

Results of analyses for samples collected February, 1983

Sampling Location	Monthly			Quarterly (Aug, Nov, Feb, May)	
INFLUENT	BOD	77,000 mg/l	10 Day	Iron	30.63 mg/l
	COD	20,488 mg/l		Magnesium	2.81 mg/l
	TR	5,127 mg/l		Manganese	83.4 mg/l
	TSR	471 mg/l		Antimony	24.0 mg/l
EFFLUENT	BOD	11,600 mg/l	10 Day	Iron	2.96 mg/l
	COD	19,349 mg/l		Magnesium	3.15 mg/l
	TR	3,275 mg/l		Manganese	8.18 mg/l
	TSR	155 mg/l		Antimony	6.36 mg/l
WET WELL	TR	962 mg/l		Iron	8.17 mg/l
	TSR	187 mg/l		Magnesium	1.76 mg/l
				Manganese	9.16 mg/l
				Antimony	10.24 mg/l
WELL #1 (Beside drain field)	BOD	8.0 mg/l	Well Depth:	Iron	9.74 mg/l
	COD	81 mg/l		Magnesium	4.92 mg/l
	TR	511 mg/l	1.42 ft.	Manganese	0.97 mg/l
				Antimony	0.19 mg/l
WELL #2 (Beside creek)	BOD	4.0 mg/l	Well Depth:	Iron	59.80 mg/l
	COD	106 mg/l		Magnesium	24.5 mg/l
	TR	1,547 mg/l	3.61 ft.	Manganese	0.29 mg/l
				Antimony	<0.1 mg/l
WELL #3 (Background well)	BOD	4.7 mg/l	Well Depth:	Iron	90.5 mg/l
	COD	167 mg/l		Magnesium	27.5 mg/l
	TR	2,913 mg/l	7.07 ft.	Manganese	0.50 mg/l
				Antimony	0.13 mg/l

Average Daily Flow, GPD

Week 1	1,064
Week 2	1,256
Week 3	836
Week 4	636

NORTH CAROLINA DEPARTMENT OF NATURAL RESOURCES & COMMUNITY DEVELOPMENT

WELL RECORD — DIVISION OF ENVIRONMENTAL MANAGEMENT, GROUNDWATER SECTION

P.O. BOX 27687 - RALEIGH, N.C. 27611

2 - Wells

DRILLING CONTRACTOR S.T. Well Drilling REG. NO. 467 WELL CONSTRUCTION PERMIT NO.

1. WELL LOCATION: (Show sketch of the location below)

Nearest Town: Griffin County:

Quadrangle No.

(Road, Community or Subdivision and Lot No.)

2. OWNER: James Enterprise

3. ADDRESS: Griffin

4. TOPOGRAPHY: draw, valley, slope, hilltop, ~~flat~~ (circle one)

5. USE OF WELL: test DATE: 11-19-82

6. DOES THIS WELL REPLACE AN EXISTING WELL? no

7. TOTAL DEPTH: 55 RIG TYPE OR METHOD: Rotary

8. FORMATION SAMPLES COLLECTED: YES (NO)

9. CASING:

	Depth		Inside Dia.	Wall thick. or weight/ft.	type
From	1	to 45 ft	4"	sch-40	plastic

10. GROUT:

	Depth		Material	Method
From		to ft		

11. SCREEN:

	Depth		Dia.	Type & Opening
From	45	to 55 ft	4"	plastic 18th

12. GRAVEL:

	Depth		Size	Material
From	35	to 55 ft	1/8 x 1/16	Rock

13. WATER ZONES (depth): 45 - 55

14. STATIC WATER LEVEL: 5 ft. above (below) top of casing

Casing is 2 ft. above land surface ELEV:

15. YIELD (gpm): 10 METHOD OF TESTING: air

16. PUMPING WATER LEVEL: — ft.

after — hours at — gpm.

17. CHLORINATION: Type — Amount

18. WATER QUALITY: — TEMPERATURE (°F)

19. PERMANENT PUMP: Date Installed —

Type — Capacity — (gpm) HP —

Make — Intake Depth

Airline Depth —

20. HAS THE OWNER BEEN PROVIDED A COPY OF THIS RECORD AND INFORMED OF THE DEPARTMENTS REQUIREMENTS AND RECOMMENDATIONS?

21. REMARKS

I do hereby certify that this well was constructed in accordance with N.C. Well Construction Regulations and Standards and that this well record is true and exact.

SIGNATURE OF CONTRACTOR OF AGENT — DATE 11-19-82

DRILLING LOG

DEPTH FROM	TO	FORMATION DESCRIPTION
1	8	soft sand
8	35	clay
35	45	clay sand
45	55	sand

If additional space is needed, use back of form

LOCATION SKETCH
(Show distance to numbered roads, or other map reference points)

ARH

Environment I, Incorporated

Wastewater Analyses Environmental Consultants

JAMES ENTERPRISES, INC. Permit No. 7210

GRIFTON, NC

Results of analyses for samples collected 8-11-82

Sampling Location	Monthly			Quarterly (Aug, Nov, Feb, May)	
INFLUENT	BOD	709	mg/l	Iron	48.4 mg/l
	COD	29600	mg/l	Magnesium	1.5 mg/l
	TR	3747	mg/l	Manganese	4.35 mg/l
	TSR	10	mg/l	Antimony	12.6 mg/l
EFFLUENT	BOD	229	mg/l	Iron	1.00 mg/l
	COD	816	mg/l	Magnesium	1.48 mg/l
	TR	2289	mg/l	Manganese	8.95 mg/l
	TSR	51	mg/l	Antimony	1.23 mg/l
WET WELL	TR	6286	mg/l	Iron	32.6 mg/l
	TSR	12	mg/l	Magnesium	.64 mg/l
				Manganese	44.0 mg/l
				Antimony	34.6 mg/l
WELL #1 (Beside drain field)	BOD	2.2	mg/l	Well Depth:	Iron 43.4 mg/l
	COD	44	mg/l		Magnesium .62 mg/l
	TR	3563	mg/l	———	Manganese .62 mg/l
					Antimony <.01 mg/l
WELL #2 (Beside creek)	BOD	4.8	mg/l	Well Depth:	Iron 46.3 mg/l
	COD	580	mg/l		Magnesium 1.63 mg/l
	TR	10864	mg/l	———	Manganese .26 mg/l
					Antimony <.01 mg/l
WELL #3 (Background well)	BOD	2.6	mg/l	Well Depth:	Iron 11.1 mg/l
	COD	28	mg/l		Magnesium 2.96 mg/l
	TR	995	mg/l	———	Manganese .57 mg/l
					Antimony <.01 mg/l

NOTE: Wells were new and were very silty. Tapes to measure well depths have not been purchased yet.

Environment I, Incorporated

Wastewater Analyses — Environmental Consultants

PHONE (919) 756-6208
BOX 7085
GREENVILLE, N. C. 27834

JAN 3 1983

JAMES ENTERPRISES, INC. Permit No. 7210

GRIFTON, NC

Results of analyses for samples collected September 15, 1982

Sampling Location	Monthly			Quarterly (Aug, Nov, Feb, May)
INFLUENT	BOD	626	mg/l	Iron _____ mg/l
	COD	2,880	mg/l	Magnesium _____ mg/l
	TR	5,701	mg/l	Manganese _____ mg/l
	TSR	29	mg/l	Antimony _____ mg/l
EFFLUENT	BOD	220	mg/l	Iron _____ mg/l
	COD	401	mg/l	Magnesium _____ mg/l
	TR	1,838	mg/l	Manganese _____ mg/l
	TSR	24	mg/l	Antimony _____ mg/l
WET WELL	TR	2,973	mg/l	Iron _____ mg/l
	TSR	231	mg/l	Magnesium _____ mg/l
				Manganese _____ mg/l
				Antimony _____ mg/l
WELL #1* (Beside drain field)	BOD	_____	mg/l	Iron _____ mg/l
	COD	_____	mg/l	Magnesium _____ mg/l
	TR	_____	mg/l	Manganese _____ mg/l
	Well Depth:	_____		Antimony _____ mg/l
WELL #2* (Beside creek)	BOD	_____	mg/l	Iron _____ mg/l
	COD	_____	mg/l	Magnesium _____ mg/l
	TR	_____	mg/l	Manganese _____ mg/l
	Well Depth:	_____		Antimony _____ mg/l
WELL #3* (Background well)	BOD	_____	mg/l	Iron _____ mg/l
	COD	_____	mg/l	Magnesium _____ mg/l
	TR	_____	mg/l	Manganese _____ mg/l
	Well Depth:	_____		Antimony _____ mg/l

All wells were dry at the time of sampling

Average Daily Flow, GPD

Week 1	Data lost
Week 2	113
Week 3	294
Week 4	715
Week 5	_____

Environment I, Incorporated

Wastewater Analyses — Environmental Consultants

PHONE (919) 756-6208
BOX 7085
GREENVILLE, N. C. 27834

JAN 3 1983
D. E. M.

JAMES ENTERPRISES, INC. Permit No. 7210
GRIFTON, NC

Results of analyses for samples collected October 20, 1982

Sampling Location	Monthly			Quarterly (Aug, Nov, Feb, May)
INFLUENT	BOD	433	mg/l	Iron _____ mg/l
	COD	9,350	mg/l	Magnesium _____ mg/l
	TR	3,377	mg/l	Manganese _____ mg/l
	TSR	312	mg/l	Antimony _____ mg/l
EFFLUENT	BOD	650	mg/l	Iron _____ mg/l
	COD	3,366	mg/l	Magnesium _____ mg/l
	TR	2,775	mg/l	Manganese _____ mg/l
	TSR	200	mg/l	Antimony _____ mg/l
NET WELL	TR	14,962	mg/l	Iron _____ mg/l
	TSR	421	mg/l	Magnesium _____ mg/l
				Manganese _____ mg/l
				Antimony _____ mg/l
WELL #1* (Beside drain field)	BOD	_____	mg/l	Well Depth: _____
	COD	_____	mg/l	Iron _____ mg/l
	TR	_____	mg/l	Magnesium _____ mg/l
				Manganese _____ mg/l
				Antimony _____ mg/l
WELL #2* (Beside creek)	BOD	_____	mg/l	Well Depth: _____
	COD	_____	mg/l	Iron _____ mg/l
	TR	_____	mg/l	Magnesium _____ mg/l
				Manganese _____ mg/l
				Antimony _____ mg/l
WELL #3* (Background well)	BOD	_____	mg/l	Well Depth: _____
	COD	_____	mg/l	Iron _____ mg/l
	TR	_____	mg/l	Magnesium _____ mg/l
				Manganese _____ mg/l
				Antimony _____ mg/l

* All wells dry at time of sampling

Average Daily Flow, GPD

Week 1	436
Week 2	232
Week 3	1,091
Week 4	629
Week 5	

ARIt

Environment I, Incorporated

RECEIVED
W[illegible] [illegible]TON OFFICE
DEC 29 1982
D.E.M.

Wastewater An[illegible] Environmental [illegible]

JAMES ENTERPRISES, INC. Permit No. 7210

GRIFTON, NC

Results of analyses for samples collected November 22, 1982

Sampling Location	Monthly		Quarterly (Aug, Nov, Feb, May)
INFLUENT	BOD 1,921 mg/l COD 18,365 mg/l TR 11,093 mg/l TSR 2,997 mg/l		Iron 35.4 mg/ Magnesium 3.19 mg/ Manganese 150 mg/ Antimony 43 mg/
EFFLUENT	BOD 615 mg/l COD 10,774 mg/l TR 6,180 mg/l TSR 463 mg/l		Iron 1.69 mg/ Magnesium 1.39 mg/ Manganese 1.29 mg/ Antimony 14.3 mg/
WET WELL	TR 2,015 mg/l TSR 198 mg/l		Iron 0.94 mg/ Magnesium 2.19 mg/ Manganese 7.56 mg/ Antimony 13.8 mg/
WELL #1 (Beside drain field)	BOD <1.0 mg/l COD <15 mg/l TR 290 mg/l	Well Depth: * 2 ft., 10¼ in.	Iron 10.7 mg/ Magnesium 4.16 mg/ Manganese 0.68 mg/ Antimony <0.01 mg/
WELL #2 (Beside creek)	BOD <1.0 mg/l COD 184 mg/l TR 884 mg/l	Well Depth: * 5 ft., 10½ in	Iron 164 mg/ Magnesium 12.13 mg/ Manganese 0.46 mg/ Antimony <0.01 mg/
WELL #3 (Background well)	BOD 1.4 mg/l COD 176 mg/l TR 782 mg/l	Well Depth: * 2 ft., 0 in.	Iron 153 mg/ Magnesium 12.31 mg/ Manganese 0.46 mg/ Antimony <0.01 mg/

Average Daily Flow, GPD

Week 1	884
Week 2	709
Week 3	1034
Week 4	443
Week 5	

* Depth from top of casing to water lev[illegible]

AR4

Environment I, Incorporated

Wastewater Analyses — Environmental Consultants

PHONE (919) 756-[illegible]08
BOX 7085
GREENVILLE, N.C. [illegible]8:4

JAMES ENTERPRISES, INC. Permit No. 7210

GRIFTON, NC

Results of analyses for samples collected December, 1982

Sampling Location	Monthly			Quarterly (Aug, Nov, Feb, May)
INFLUENT	BOD	6,600 mg/l		Iron _____ mg/l
	COD	36,640 mg/l		Magnesium _____ mg/l
	TR	21,946 mg/l		Manganese _____ mg/l
	TSR	9,500 mg/l		Antimony _____ mg/l
EFFLUENT	BOD	844 mg/l		Iron _____ mg/l
	COD	16,560 mg/l		Magnesium _____ mg/l
	TR	7,365 mg/l		Manganese _____ mg/l
	TSR	495 mg/l		Antimony _____ mg/l
WET WELL	TR	58 mg/l		Iron _____ mg/l
	TSR	5,130 mg/l		Magnesium _____ mg/l
				Manganese _____ mg/l
				Antimony _____ mg/l
WELL #1 (Beside drain field)	BOD	<1.0 mg/l	Well Depth: 2.4 feet	Iron _____ mg/l
	COD	<15 mg/l		Magnesium _____ mg/l
	TR	349 mg/l		Manganese _____ mg/l
				Antimony _____ mg/l
WELL #2 (Beside creek)	BOD	1.7 mg/l	Well Depth: 5.4 feet	Iron _____ mg/l
	COD	152 mg/l		Magnesium _____ mg/l
	TR	2,777 mg/l		Manganese _____ mg/l
				Antimony _____ mg/l
WELL #3 (Background well)	BOD	1.7 mg/l	Well Depth: 8.8 feet	Iron _____ mg/l
	COD	120 mg/l		Magnesium _____ mg/l
	TR	2,879 mg/l		Manganese _____ mg/l
				Antimony _____ mg/l

Average Daily Flow, GPD

Week 1	443
Week 2	1,076
Week 3	337
Week 4	269
Week 5	1,068

DIVISION OF ENVIRONMENTAL MANAGEMENT

March 3, 1982

Mr. Robert H. Glossip, General Manager
James Enterprises
Route 3, Box 118
Grifton, North Carolina

SUBJECT: Permit No. 7210
James Enterprises
Industrial Wastewater
Treatment Facility
Lenoir County

Dear Mr. Glossip:

In accordance with your application received November 6, 1981, we are forwarding herewith Permit No. 7210, dated March 3, 1982, to James Enterprises for the construction and operation of the subject non-discharge type waste treatment facilities.

This permit shall be effective from the date of issuance until March 31, 1985, and shall be subject to the conditions and limitations as specified therein.

If any parts, requirements, or limitations contained in this permit are unacceptable to you, you have the right to an adjudicatory hearing before a hearing officer upon written demand to the Director within thirty (30) days following receipt of this permit, identifying the specific issues to be contended. Unless such demand is made, this permit shall be final and binding.

One (1) set of approved plans and specifications is being forwarded to you. If you have any questions or need additional information concerning this matter, please contact Mr. Richard E. Rohrbaugh, telephone No. 919/733-7120.

Sincerely yours,

Original Signed By
for W. LEE FLEMING, JR.
Robert F. Helms
Director

cc: Lenoir County Health Department
McDavid Associates, Incorporated
Mr. W. Lee Fleming, Jr.
Mr. Jim Mulligan
Washington Regional Office Manager

NORTH CAROLINA

ENVIRONMENTAL MANAGEMENT COMMISSION

DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT

RALEIGH

P E R M I T

For the Discharge of Sewage, Industrial Wastes, or Other Wastes

---

In accordance with the provisions of Article 21 of Chapter 143, General Statutes of North Carolina as amended, and other applicable Laws, Rules, and Regulations

PERMISSION IS HEREBY GRANTED TO

James Enterprises
Lenoir County

FOR THE

construction and operation of 2250 GPD industrial wastewater treatment facility consisting of (2) two-900 gallon septic tanks approximately 275 lineal feet of 6-inch gravity collection line, a 20 GPM pump station with dual pumps and high water alarm, approximately 35 lineal feet of 2-inch force main, a 10,000 gallon aeration chamber, dual 150 CFM blowers, an aerated sludge holding tank, clarifier, a 900 gallon effluent holding tank, approximately 1500 lineal feet of 4-inch drainage laterals in three (3) subsurface disposal fields with a total trench area of 4500 square feet, and all related piping, valves, and appurtenances to serve James Enterprises with no discharge of wastewater to the surface waters of the State,

pursuant to the application received November 6, 1981, and in conformity with the project plans, specifications, and other supporting data, subsequently filed and approved by the Department of Natural Resources and Community Development and considered a part of this Permit.

This Permit shall be effective from the date of issuance until March 31, 1985, and shall be subject to the following specified conditions and limitations:

1. This permit shall become voidable unless the facilities are constructed in accordance with the approved plans, specifications and other supporting data.

2. This permit is effective only with respect to the nature and volume of wastes described in the application and other supporting data.

3. The facilities shall be properly maintained and operated at all times.

4. This permit is not transferable.

5. This is a Class II Wastewater Treatment Plant and the person in responsible charge must hold a valid Grade II Certificate.

6. Diversion or bypassing of the untreated wastewater from the treatment facilities is prohibited and shall cause this Permit to become voidable.

7. Solids, sludges, or other pollutants removed or resulting from the wastewater treatment process shall be contained and disposed of as hazardous wastes. In the event that testing performed to the satisfaction of the Division of Environmental Management is conducted and indicates that wastes are of a non-hazardous nature, these wastes may be disposed of as directed by the Division upon submittal of a request package including sludge analysis.

8. James Enterprises' industrial wastewater treatment facility shall be effectively maintained and operated at all times so that there is no discharge to the surface waters nor any contamination of the ground waters which will render them unsatisfactory for normal use. In event the facilities fail to perform satisfactorily, including the creation of nuisance conditions, failure of the irrigation area to adequately absorb the wastewater, or failure of the treatment facilities to provide adequate solids removal, the Permittee shall take such immediate corrective action as may be required by the Division of Environmental Management.

9. The Permittee shall provide and maintain monitoring facilities and a ground water monitoring program such as may be required by the Division of Environmental Management and submit monitoring reports on a regular basis to the Division.

10. Mr. Jim Mulligan, Regional Supervisor (919/846-6481) shall be notified at least twenty-four (24) hours in advance of backfilling of the installed subsurface disposal system so that an in-place inspection can be made of said system prior to backfilling. Such notification to the Regional Supervisor shall be made during the normal office hours from 8:30 A.M. until 5:30 P.M. on Monday through Friday, excluding State Holidays.

11. The Permittee, at least six (6) months prior to the expiration of this Permit, shall request its extension. Upon receipt of the request, the Commission will review the adequacy of the facilities described therein, and if indicated, will extend the Permit for such period of time and under such conditions and limitations as it may deem appropriate.

12. This Permit does not relieve James Enterprises of the responsibility for any contamination of ground waters resulting from the wastewater treatment and disposal facility.

13. In the event that disposal field "A" fails to adequately absorb the wastewater, field "B" shall be placed in operation and tertiary filters shall be constructed and placed in operation prior to any discharge to disposal field "C".

Permit issued this the 3rd day of March, 1982.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

Original Signed By
for W. LEE FLEMING, JR.

Robert F. Helms, Director
Division of Environmental Management
By Authority of the Environmental Management Commission

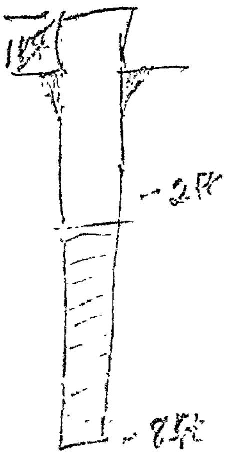
James Enterprises 18 Jan 1982

Monitor Wells (3)

#1 in mid area of field "A"

#2 between edge of field "A" and stream "(ditch) on west side of the field

#3 control well in ... [illegible] ... of the NE ... [illegible] ... field, ... [illegible] ... field ... [illegible] ... wells



Well construction

3 ft ... [illegible] ... plastic ... [illegible]

2 - 8 ft plastic ... [illegible]

~~check on use of galv. pipe for wells~~

may use PVC or other plastic csg

Levels ... [illegible] ... TD 8.5 ft

... [illegible] ... prior to beginning disposal ops

Frequency GW Quarterly

BOD COD TSS & metals (Fe AL MAN Mg Antimony & ZN)

GROUND WATER SECTION
DIVISION OF RESOURCE PLANNING AND EVALUATION
DEPARTMENT OF NATURAL AND ECONOMIC RESOURCES

RECORD OF WASTE OR WASTEWATER PERMIT APPLICATION REVIEW

REVIEW BY: W C Fetter DATE 3-4 Nov 1981

FIELD INVESTIGATION BY: W C Fetter DATE 18 Jan 1982

TOWN: Grangers COUNTY Lenoir

LOCATION (SKETCH ON BACK): on NE side of SR-1800, 0.15 miles S-E of junction with Seaboard Coastline Railroad

OWNER(S) OF FACILITY OF INSTALLATION: [illegible] Enterprises

TYPE WASTE OR WASTEWATER SYSTEM: (LAND FILL, LAGOON, ETC) septic tank serving as a primary settling tank followed by package treatment plant with 3 subsurface disposal fields

TYPE OF WASTE: wastewater from a synthetic fabric manufacturing equipment cleaning operation

CHEMICAL ANALYSES AND OTHER DATA AVAILABLE: general chem analysis, stream and discharge analysis, and soils data

NAME OF NEAREST STREAM: unnamed trib of the Neuse DISTANCE: adjacent to

DISTANCE TO NEAREST WELL: > 100 feet

AVG. DISCHARGE RATE 1250 → 1850 gpd LIFE EXPECTANCY OF FACILITY 20 years

DESCRIPTION OF FACILITY (SKETCH ON BACK): see description above and site plans

PROPOSED METHOD FOR PREVENTING GROUNDWATER CONTAMINATION: quality of the effluent and separation from the season high water table

STRUCTURE, LITHOLOGY AND PERMEABILITY OF SURFICIAL MATERIALS: sands and slightly silty sands - very permeable (Lakeland soil) - sand silt, poor to moderate permeability and high water table < 2 ft

HYDRAULIC RELATIONSHIP BETWEEN WATER TABLE AND ARTESIAN AQUIFERS: not established for the site - believed that both water table and underlying Pee Dee Aquifer are discharging in this area

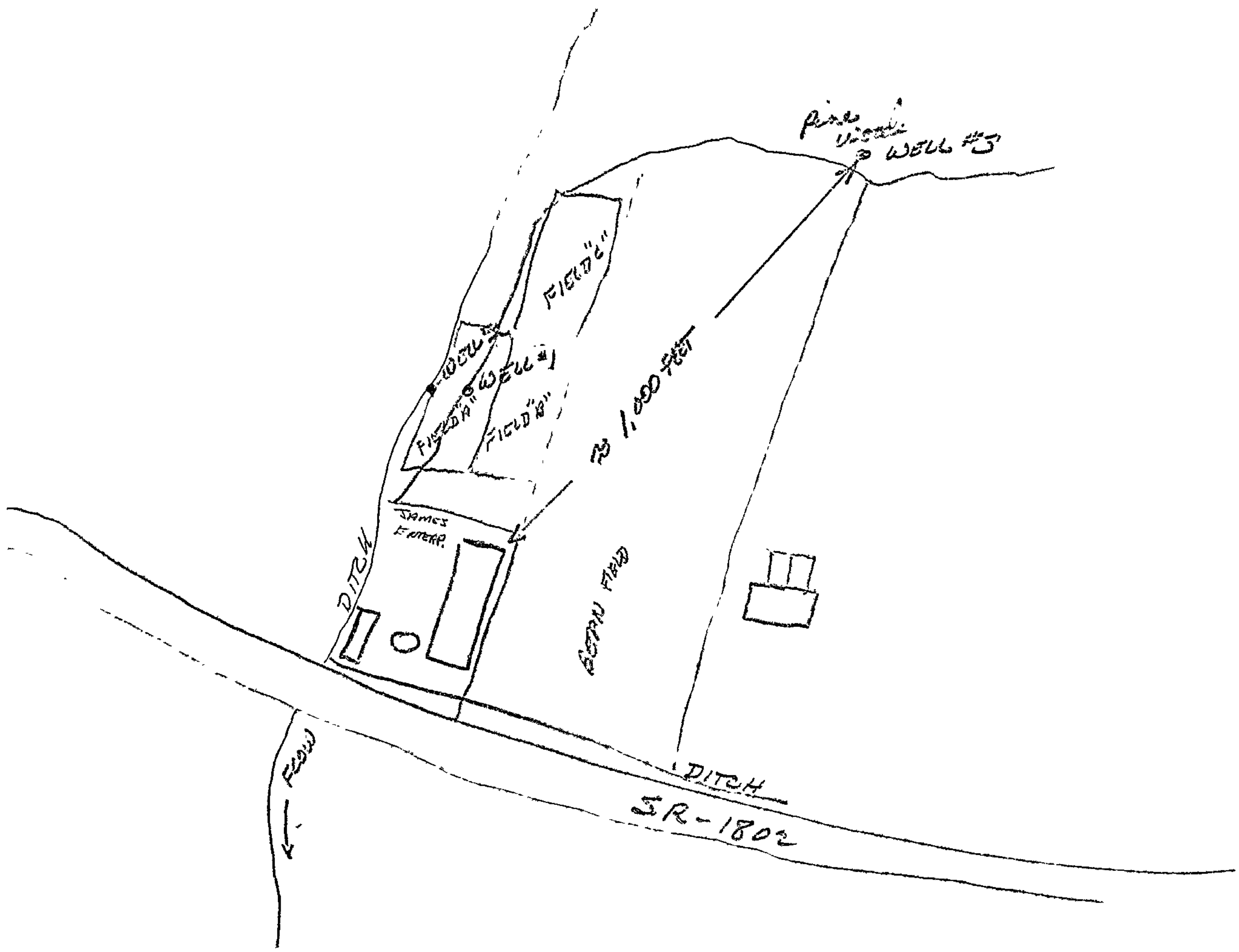
DEPTH TO BEDROCK: NA DEPTH TO WATER TABLE: 0 - 2 ½ feet

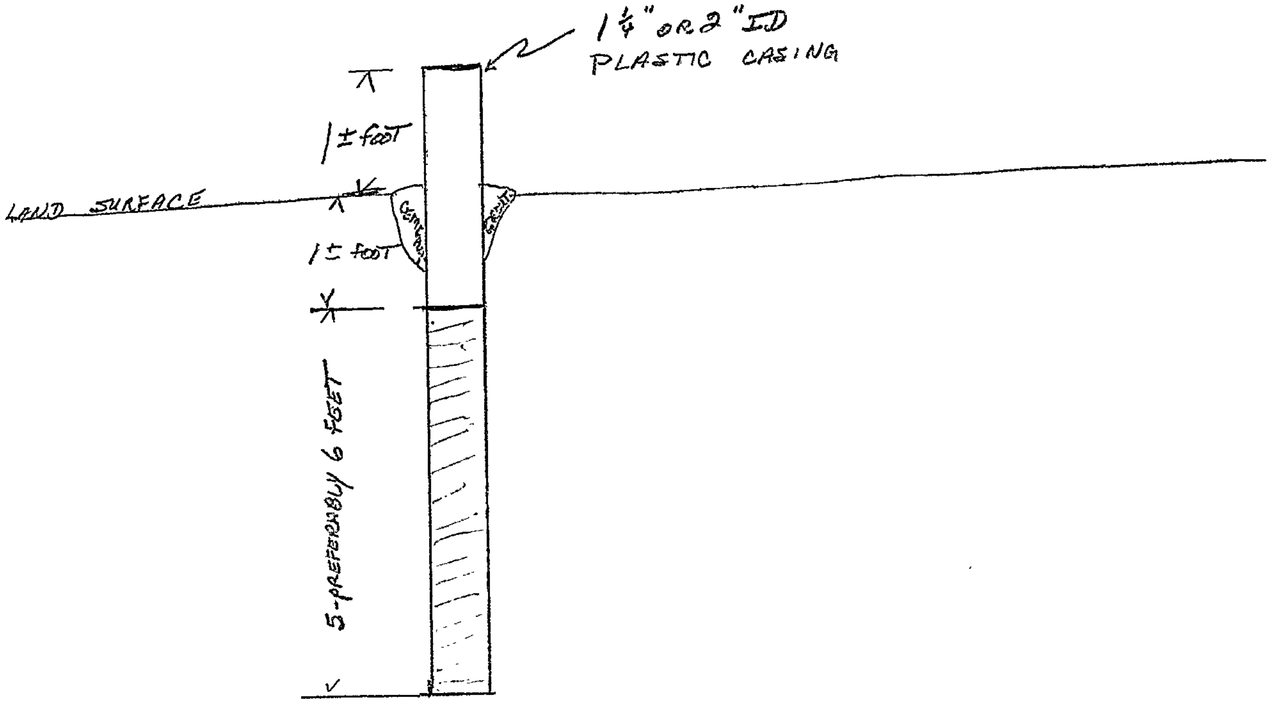
MONITORING FACILITIES NEEDED: (ATTACH SKETCH) 3 plastic cased wells with 5 to 10 feet of screens from depth of 1 to 5 or 7 feet (over sheet)

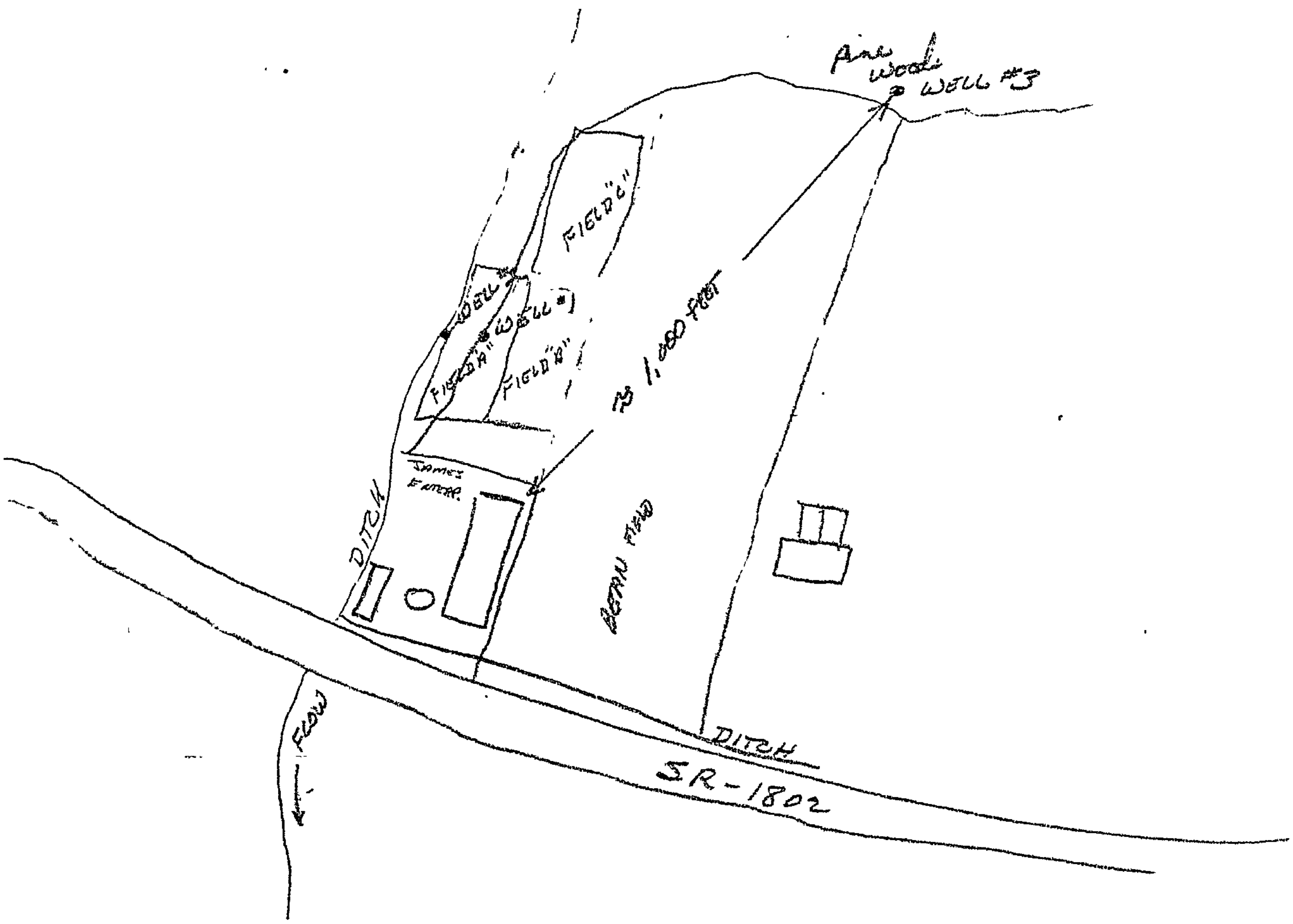
RECOMMENDED SAMPLING SCHEDULE: quarterly beginning prior to construction

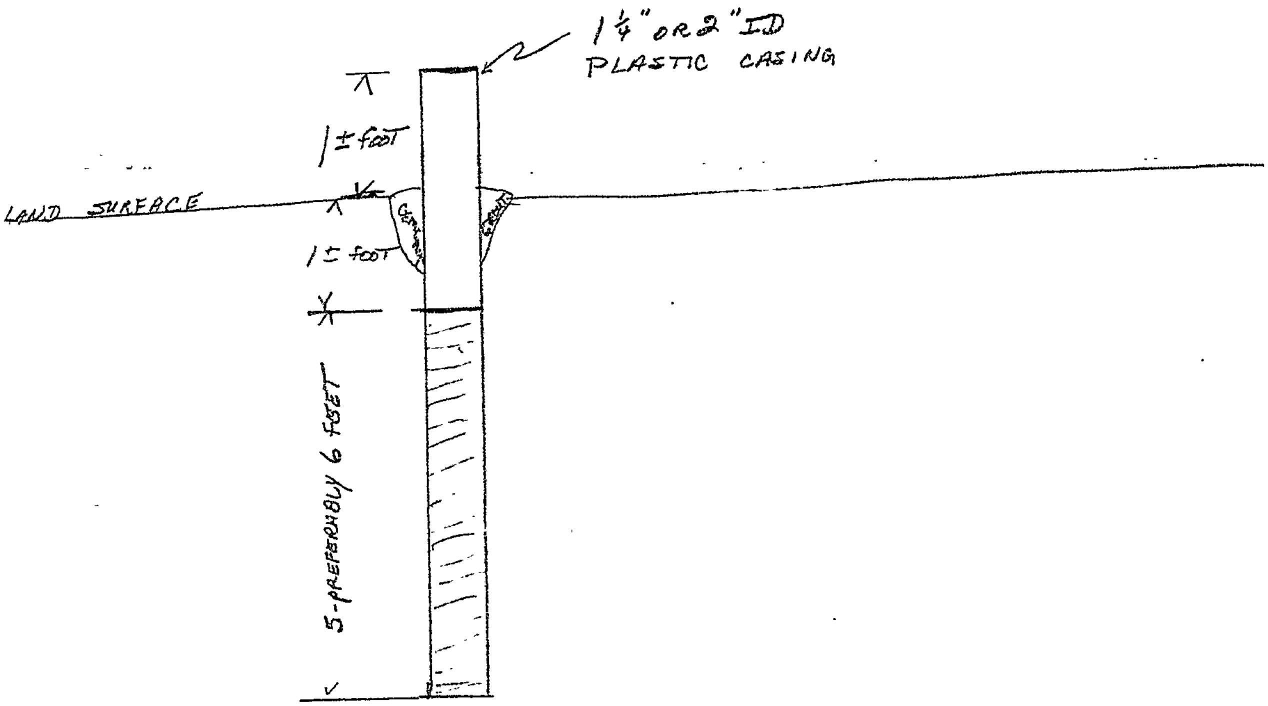
REMARKS AND RECOMMENDATIONS: It is recommended that none of the subsurface drainfield trench bottoms be less than one foot above the seasonal high water table. Also the samples from monitor wells be analyzed for BOD, COD, TSS, and metals: iron, aluminum, magnesium, manganese, zinc, and antimony.

FORM GW 48


WELL #3
FIELD "C"
WELL #1
FIELD "A"
FIELD "B"
1,000 FEET
JAMES ENTERP.
DITCH
FLOW
DITCH
SR-1802


1¼" OR 2" ID
PLASTIC CASING
1 ± FOOT
LAND SURFACE
1 ± FOOT
5-PREFERABLY 6 FEET


WELL #3
FIELD "C"
WELL #1
FIELD "A"
FIELD "B"
± 1,000 FEET
DITCH
BEAN FIELD
FLOW
DITCH
SR-1802


1¼" OR 2" ID
PLASTIC CASING
1± foot
LAND SURFACE
1± foot
5-PREFERABLY 6 FEET

Conference in Washington, N.C.
on James Ent. 11/4/81

E.M. PITTMAN	DUPONT	CONTRACT ADM.
ROBERT M. GLOSSIP	JAMES ENTERPRISES	GEN'L MANAGER
Tyndall Lewis	McDaud Assoc	CONSULTANT
STEVE REID	DEM	Chemist
BARRY ADAMS	DEM	Assistant Reg Super
BILL JETER	DEM	REG HYDROLOGIST
Roger Thorpe	DEM	Reg. Eng. Water Quality
Jim Mulligan	DEM	Reg. Supervisor
[illegible]	Dupont	Eng. [illegible] Design
ERNIE L. LONG	DUPONT	ENVIRONMENTAL CONTROL

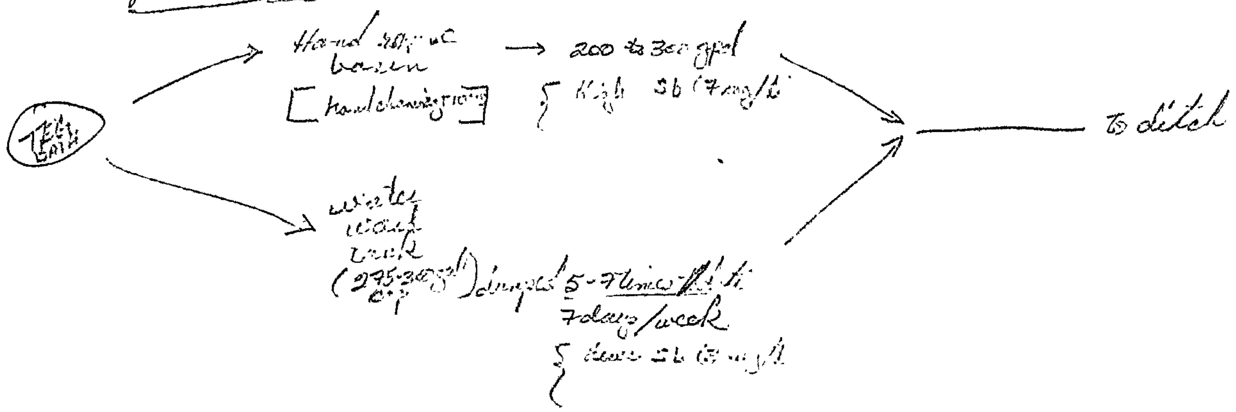
James Enterprises Meeting 4 Nov 81

[illegible]

Alten -

Major concerns - metals - primarily antimony (Sb)
(source - antimony trioxide from E Long & catalyst used to form the [illegible])

Present System



TiO2 in system is [illegible] (avg [illegible])

Recommend
Tyndall will attempt to bring the nitro field [illegible] up by 0.5 to 1 ft

Questions application must answer
1) [illegible] of system for TEG, Polymer, antimony & TiO2
2) possible solids problem (ensure the field won't clog)
3) Permit will include provision for [illegible]
4) must include [illegible]
5)
6) must cover cleaning out [illegible] in stream TiO2 [illegible]

TiO2 [illegible]

[illegible] will be [illegible]

REPORT OF INVESTIGATION OF A HAZARDOUS MATERIAL SPILL ADJACENT TO THE DuPONT KINSTON PLANT, LENOIR COUNTY.

In response to a report by Roger Thorpe of DEM, Water Quality Section, a field investigation of an Ethylene Glycol spill was conducted.

The spill occurred at approximately 0300 hours, 21 June 1977, approximately 0.5 miles northeast of the DuPont plant. After the collision of two railroad tank cars, one containing 20,000 gallons of Ethylene Glycol was derailed and overturned. Through a rupture in the center-bottom of the tank and a sprung hatchway, approximately 10,000 gallons of the chemical was spilled. Prompt action by officials of the DuPont plant resulted in the spill being contained within the railroad right of way.

DuPont personnel were attempting to recover the Ethylene Glycol remaining in the tank car for refining at the time of the field investigation. The DuPont officials headed by E.L. Long have agreed to recover the Ethylene Glycol remaining on the site and arrange for the removal of the contaminated surface soil material. The soil material from the site will be disposed of under the direction of state and local solid waste officials in the DuPont landfill.

The prompt action of the company officials and the apparent gradient of the water table in the area have minimized the effect on groundwater and reduced the likelyhood of the contamination of nearby wells. The closest water supply well to the site is an infrequently used well on the property of Mr. Ernest Johnson, some 250 feet north of the spill site and up gradient on the water table. The DuPont wells are located a minimum of 2,500 feet southeast of the spill site. The natural surface drainage indicates that any contaminated groundwater would discharge into surface waters prior to reaching the DuPont wells.

Due to the degradeable nature of the Ethylene Glycol, no long term monitoring is recommended, however, DuPont officials have agreed to monitor the Johnson well to determine if any of the spilled glycol does reach the well.

cc: Perry Nelson

SN 1013
P-25 x
352028
772830

GROUND WATER DIVISION

OFFICE OF WATER AND AIR RESOURCES

DEPARTMENT OF NATURAL AND ECONOMIC RESOURCES

RECORD OF GROUND WATER POLLUTION SOURCE

RECORD BY: W.C. JETER DATE 21 JUNE W.D. PERMIT NO. _____

TOWN: GRANGERS COUNTY: LENOIR

LOCATION (SKETCH ON BACK): SEE ATTACHED MAP

OWNER(S) OF FACILITY OR INSTALLATION: DUPONT CORP.

TYPE SOURCE: (LAND FILL, LAGOON, ETC) DERAILED TANK CAR

CHARACTER AND QUANTITY OF POLLUTANTS: ETHYLENE GLYCOL, ≈ 10,000 GALLONS

DESCRIPTION OF FACILITY (SKETCH ON BACK): CAR DERAILMENT OCCURRED AT A SIDING ON THE NORTHERN BOUNDRY OF THE DUPONT PLANT SITE.

HYDROGEOLOGIC CONDITIONS AT SITE: THE WATER TABLE WAS AT A DEPTH OF GREATER THAN 15 FEET. THE SITE IS UNDERLAIN BY 4 TO 5 FEET OF SANDY CLAY OF LOW PERMEABILITY

POLLUTION CONFIRMED BY ANALYSIS? NO DATE _____ ANALYST: _____

MONITORING FACILITIES INSTALLED: NONE

SAMPLING SCHEDULE: N/A

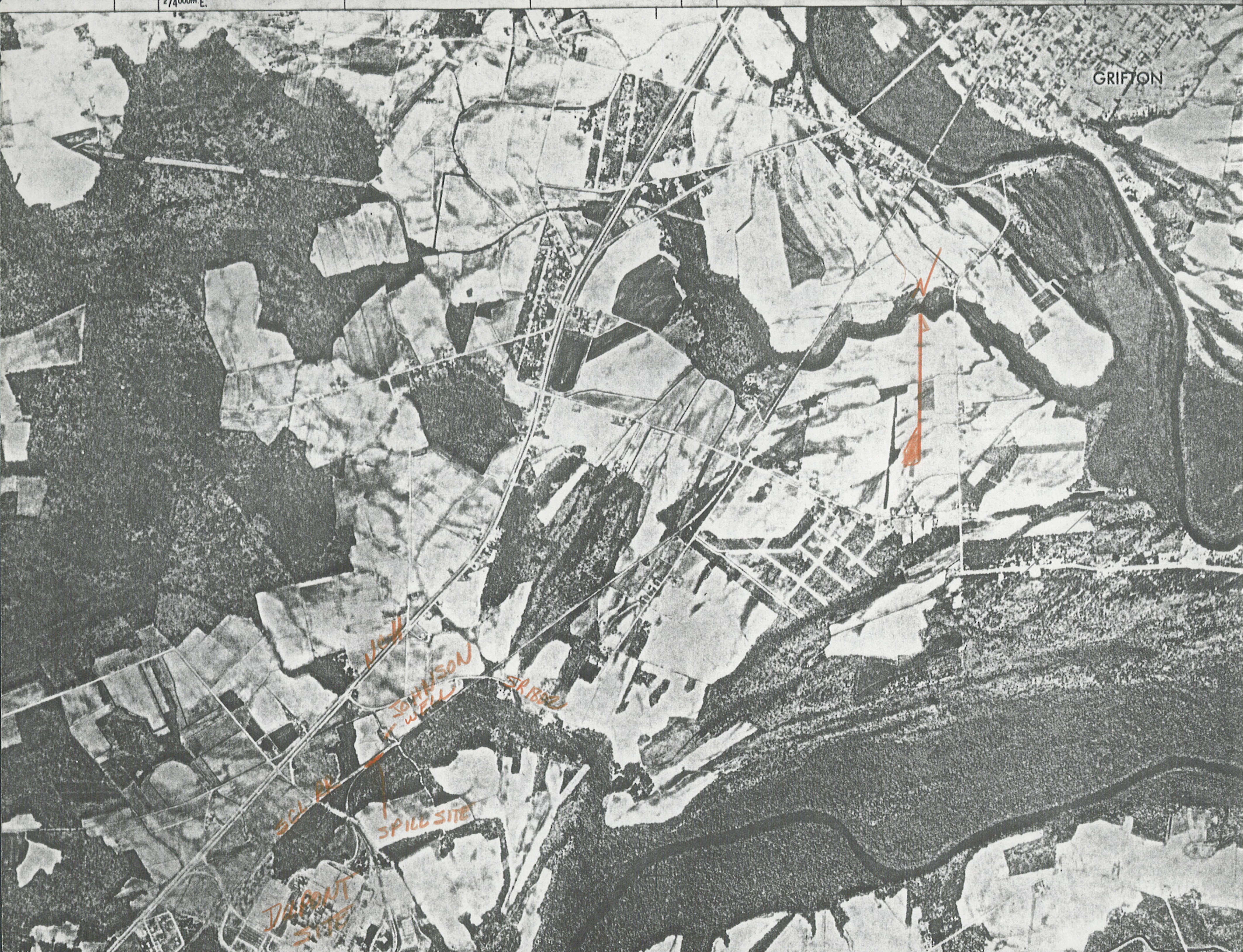
NEAREST STREAM: UNNAMED TRIBUTARY OF THE NEUSE RIVER DISTANCE ≈ 200 FEET

NEAREST WATER SUPPLY WELL: ERNEST JOHNSON WELL DISTANCE 250 FEET

ANALYSES AND OTHER DATA AVAILABLE: NONE

REMARKS: SEE ATTACHMENTS.

FORM GW-46


GRIFTON
N
Well
JOHNSON WELL
SCL RR
SPILL SITE
DUPONT SITE

NEWS STATEMENT

KENTEC GROUNDWATER INVESTIGATION

MAIN POINTS

- IN 1987 DU PONT MADE A VOLUNTARY COMMITMENT TO INVESTIGATE PAST DISPOSAL PRACTICES BY THE PREVIOUS OWNER OF THE KENTEC PARTS CLEANING FACILITY.

- THIS INVESTIGATION WAS REVIEWED AND SUPPORTED BY THE NORTH CAROLINA DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT (NRCD) AND THE LOCAL NEIGHBORS.

- PAST DISPOSAL PRACTICES AND TREATMENT PRACTICES WERE ACCEPTABLE AT THAT TIME. INCREASED ENVIRONMENTAL AWARENESS HAS LED TO IMPROVEMENTS AT KENTEC AS WELL AS THROUGHOUT OUR SOCIETY.

- INITIAL INVESTIGATION HAS DETECTED ELEVATED LEVELS OF IRON AND MANGANESE AND SMALL AMOUNTS OF 1,4-DIOXANE IN THE SHALLOW GROUNDWATER AND SURFACE WATERS.

- THERE IS NO EVIDENCE THAT SOURCES OF DRINKING WATER HAVE BEEN AFFECTED BY THE COMPOUNDS IN THE GROUND-WATER. DRINKING WATER COMES FROM A COMMUNITY SYSTEM WHICH USES DEEP WELLS.

- 1,4-DIOXANE IS TYPICALLY USED AS A SOLVENT FOR LACQUERS, PAINTS, VARNISHES, AND IN PAINT AND VARNISH REMOVERS. TRACE AMOUNTS ARE PRODUCED AS A BY-PRODUCT DURING THE HEATING OF GLYCOLS DURING THE PARTS CLEANING OPERATION.

- THE COMPANY'S ACTIONS ARE CONSISTENT WITH CORPORATE POLICY, WHICH REQUIRES COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS RELATED TO SAFETY, HEALTH, AND ENVIRONMENTAL QUALITY.

- DU PONT WILL CONTINUE THIS GROUNDWATER INVESTIGATION UNTIL THE POTENTIAL HEALTH AND/OR ENVIRONMENTAL IMPACT IS FULLY UNDERSTOOD.

- DU PONT WILL COOPERATE FULLY WITH STATE REGULATORY AUTHORITIES AND TAKE APPROPRIATE ACTION TO ASSURE THAT THE HEALTH AND ENVIRONMENTAL QUALITY OF THE NEIGHBORHOOD IS NOT COMPROMISED.

DUPONT-KENTEC SITE HISTORY

1977 T

1969 - 1981

Kentec (owned by James Enterprises) operates as a parts cleaning facility under contract to DuPont. During this period, roughly 2000 GPD of rinsewater is discharged into the drainageway (ditch) located between facility and SR 1802. In late 1981, Kentec is purchased by DuPont.

1982

Non-Discharge Permit No. 7210 issued to James Enterprises on March 3, 1982. Permits disposal of up to 2250 GPD of wastewater (rinsewater) via a septic tank and drainfield. Discharge of rinsewater into drainageway is ceased. This system remains in operation until 1986.

1986

Subsurface disposal system is abandoned in February, from this point on, all wastewater is collected and shipped off-site for treatment/disposal. "Pump and Haul" Permit No. 12725 issued to DuPont on March 28, 1986.

1987

August 13, 1987 - CH2M Hill (consultants) for DuPont-Kentec submit to DEM a report titled GROUNDWATER ASSESSMENT AT KENTEC. The report is somewhat vague in that well construction details and specific analytical results are not provided.

September 18, 1987 - Based on our review, Rudy Smithwick sends a letter to Jerry Henderson of DuPont stating that additional information will be needed before the Groundwater Section can complete it's review.

October 29, 1987 - Letter to DuPont from Rudy Smithwick stating that violations of 2L standards had occurred. Letter also requests DuPont to conduct investigations to identify and remove any sources of groundwater contamination, and develop a remedial action plan. It should be noted that although the letter contains language similar to a notice of violation, it is not a NOV.

1988

January 12, 1988 - WaRO sends letter to DuPont summarizing a meeting held on January 5, 1988 concerning the need for additional investigation (site assessment). WaRO attempts to enter into a S.O.C. with DuPont but is apparently unsuccessful.

December 2, 1988 - WaRO receives report titled DuPont - Kentec Final Draft Groundwater Assessment - Phase 2. Assessment indicates presence of 1,4, Dioxane, 1,1, Dichloroethane (DCA), and 1,1, Dichloroethylene (DCE). The report makes the following recommendations:

1. Conduct soil sampling in drainfield area.
2. Installation of additional monitoring wells in the downgradient direction.
3. Installation of deeper monitoring wells to determine if impacts to the Pee Dee aquifer have occurred.
4. Additional surface water and sediment sampling to determine the presence and/or extent of contamination.
5. Sampling of nearby residential water supply wells.
6. Development of a topographic map of the site.

DuPont-Kentec purchases properties adjacent to the facility.

1989

Phase III assessment is initiated in October by CH2M Hill addressing the above noted recommendations.

1990

In July, an audit of wastewater sources is conducted to identify potential sources of groundwater contamination. The following areas of concern were noted:

1. Drainfield area
2. Wastewater settling tanks (underground)
3. Wet well serving as collection point for wastewater piping and all associated piping.
4. Former powdered metal disposal area.
5. Drainageways (ditches) that received wastewater.

1990 continued

6. Cleaning areas and aboveground storage tanks with containment structures (dikes).

Steps were taken to eliminate any potential continuing sources of contamination in late 1990 and early 1991.

November 26, 1990 - Results of Phase III investigation are submitted in a report titled "DuPont - Kentec GROUNDWATER INVESTIGATIONS"

1991

January 25, 1991 - Willie Hardison and Guy Pearce meet with DuPont-Kentec representatives at the Kentec facility to discuss appropriate course of action.

February 4, 1991 - A Notice of Violations is issued to DuPont-Kentec The NOV requires a site assessment report which indicates the horizontal and vertical extent of groundwater contamination to be submitted within sixty (60) days.

February 15, 1991 - Susan Broad of Environmental and Regulatory Consultants, Inc. reviews WaRO files concerning DuPont-Kentec.

March 18, 1991 - WaRO receives letter from Jerry Henderson of DuPont stating that horizontal extent of the contaminant plume cannot be completed within the sixty (60) day deadline established in the February 4, 1991 NOV due to offsite access problems.

April 9, 1991 - In accordance with the above-noted NOV, a report titled Kentec Groundwater Assessment is received by WaRO. The assessment recommends the following:

1. Installation of off-site monitor wells to determine the extent of contamination.

2. Installation of deep monitor well to determine if impacts to the Pee Dee aquifer have occurred.

3. Evaluation of all available data so that a feasibility study for groundwater remediation can be developed.

April 19, 1991 - a meeting is held with DuPont representatives at the Washington Regional Office to discuss the groundwater assessment report. The following concerns were voiced by DEM - Groundwater:

1. The lack of off-site assessment to determine

1991 (continued)

the horizontal extent of contamination.

2. The lack of sufficient data to determine the vertical extent of contamination.

May 8, 1991 - Guy Pearce sends letter to DuPont-Kentec addressing the concerns expressed in the April 19 meeting. DEM also agrees to allow DuPont-Kentec to develop a remediation system to deal with on-site contamination. This agreement is prefaced on the conditions that additional off-site assessment will be conducted and that modifications to the corrective action plan/system may become necessary as more data becomes available.

May 24, 1991 - Conceptual Remedial Action Plan (RAP) is submitted by DuPont-Kentec to deal with on-site contamination. The primary goals of the RAP are:

1. Prevent further contaminant migration.

2. Remove and treat contaminants to target clean-up levels.

3. Achieve a timely and cost effective clean-up.

June 6, 1991 - Letter from Guy Pearce (DEM-GW) approving the conceptual RAP for on-site contamination.

June 11, 1991 - Letter is received from DuPont-Kentec acknowledging receipt of DEM-GW RAP approval letter and requesting a meeting to discuss treatability study data. and working drawings.

June 24, 1991 - Craig Bromby, an attorney for Moore & Van Allen requests access to DuPont-Kentec files. On July 2, Emily Mary Brown, of Moore & Van Allen reviews files.

June 26, 1991 - Meeting with DuPont-Kentec at WaRO to discuss RAP, treatability study data, and working drawings. Need for off-site assessment is also discussed.

July 8, 1991 - WaRO receives letter from DuPont-Kentec stating that access to off-site properties has been denied. A report titled KENTEC GROUNDWATER ASSESSMENT ONSITE PEEDEE AQUIFER ADDENDUM is also submitted. Report indicates that the Peedee aquifer has not been significantly impacted, however, additional off-site assessment will be necessary for confirmation.

1991 (continued)

July 12, 1991 - WaRO receives formal submittal of Corrective Action Plan (CAP) dealing with on-site contamination.

August 20, 1991 - Letter from DEM-GW (Guy Pearce) accepting the proposed on-site CAP and stating that the next step is the development of a Special Order of Consent (SOC) document.

August 29, 1991 - Meeting at WaRO with DuPont-Kentec representatives to discuss the development of the SOC document.

September 18, 1991 - WaRO DEM meets with Central Office DEM to discuss proposed SOC for Kentec.

September 23, 1991 - Memo providing a summary of the September 18, 1991 meeting is sent from Guy Pearce to Jim Mulligan, Roger Thorpe, Dennis Ramsey, and Jeff Lautier.

September 23, 1991 - James F. Hopf of the Law Offices of Marvin Blount requests access to site files.

From October through December 1991 - DEM and DuPont-Kentec negotiate details of SOC.

December 12, 1991 - Meeting with DuPont-Kentec representatives and DEM takes place in the Archdale Building. DuPont-Kentec declines to accept (sign) the SOC that DEM has prepared.

December 23, 1991 - DEM issues a Pump and Haul Permit (permit WQ0005906) which allows the construction and operation of the proposed groundwater remediation system. Permit also allows the construction of a temporary holding pond for dewatering activities necessary to install groundwater interception trench. Penalties are stipulated for failure to meet the construction and operation deadlines established in the permit. In effect, the Pump and Haul Permit will function as a SOC agreement. Permit expiration date is December 31, 1992.

1992

June 17, 1992 - Pump and Haul Permit (WQ0005906) is amended to allow the use of railcars to transport treated effluent to DuPont-Kinston plant. Please note the permit is now for a Groundwater Remediation System, not Pump and Haul.

1992 (continued)

July 23, 1992 - Sara Ganyard, acting as an agent for Vernon G. Snyder III, requests access to site files.

September 1, 1992 - DEM receives notification (letter) from DuPont-Kentec that the remediation system is up and running. Groundwater quality data gathered just prior to system start-up is included with the letter.

September 3, 1992 - DEM receives request from DuPont-Kentec to renew the Pump and Haul Permit for a Period of five (5) years, based on the anticipated time frame for remediation.

September 15, 1992 - DEM returns the renewal application as incomplete and specifies the additional information needed to review/comment on the request.

September 23, 1992 - DEM-GW (Guy Pearce) inspects the facility and meets with DuPont-Kentec representatives. Based on the inspection, it appears the system is fully operational.

October 13, 1992 - WaRO receives report detailing the volume of water that has been treated and shipped to the DuPont-Kinston Plant in accordance with Pump and Haul Permit No. WQ0005906

October 27, 1992 - Memo from Guy Pearce to Jack Floyd concerning renewal of Pump and Haul Permit. Memo states that we have no objections to permit renewal and that the temporary holding pond has been properly abandoned.

November 9, 1992 - Memo from Jack Floyd to Don Safrit stating that the Groundwater Section does not object to permit reissuance. Memo also recommends that Permit Conditions, Section II Nos. 1, 4, 5, and 6 be deleted since these conditions have been satisfied.

December 9, 1992 - Permit No. WQ0005906 is reissued for five (5) years.

1993

January 22, 1993 - DEM receives request from DuPont-Kentec to re-instate Permit Condition - Section II No. 6, which requires remediation to continue until the target clean-up levels have been met. This condition also ties the permit to the approved Corrective Action Plan.

February 5, 1993 - Memo from Guy Pearce to Jack Floyd which agrees with request from DuPont-Kentec to re-instate Permit Condition, Section II No. 6.

1993 (continued)

February 15, 1993 - Memo from Jack Floyd to Don Safrit recommending request to re-instate Permit Condition Section II No. 6 be granted.

February 15, 1993 - WaRO receives results of November 1992 railcar/groundwater sampling as required by permit WQ0005906.

February 18, 1993 - WaRO receives a copy of CASE MANAGEMENT ORDER for Civil Action No. 91-55-CIV-4-H. One important aspect of this document is that it contains deadlines for:

1. Plantiffs are to conduct scientific testing of soil, groundwater, etc. by May 31, 1993 and submit results of testing to DuPont-Kentec by June 15, 1993.

2. DuPont will have access to, and conduct scientific testing of the plantiffs' property from July 1, through September 30, 1993. The results will be submitted to plantiffs on or before October 15, 1993.

March 15, 1993 - Pump and Haul Permit No. WQ0005906 is reissued with appropriate changes.

March 19, 1993 - WaRO receives letter from Marvin Blount, attorney for plantiffs, stating that DuPont-Kentec has been granted access to plantiffs' property. Mr Blount includes a copy of a letter to DuPont, dated February 24, 1993, granting access.

* It should be noted that the above letter was written after the CASE MANAGEMENT ORDER was issued (2/17/93).

March 24, 1993 - WaRO (Guy Pearce) sends letter to DuPont, asking them to move forward with off-site assessment since access has been granted by plantiffs.

March 31, 1993 - DuPont (Jerry Henderson) responds to March 24, 1993 letter from WaRO. DuPont takes the position that the above noted CASE MANAGEMENT ORDER stipulates the time frame for both the plantiffs and DuPont to conduct scientific testing, and that this schedule should be followed.

April 14, 1993 - WaRO receives letter from Marvin Blount stating that DuPont has failed to submit the required quarterly reports required by the approved Corrective Action Plan and Pump and Haul Permit No. WQ0005906. Based on our review, the required reports have been

1993 (continued)

submitted with the exception of the February 1993 report. Guy Pearce telephones DuPont (Jerry Henderson) on April 21, 1993, and asks for results of February 1993 sampling.

April 23, 1993 - WaRO receives letter, dated April 21, 1993, from DuPont containing the above noted sampling results.

April 29, 1993 - In response to telephone conversation between Jerry Henderson and Guy Pearce, WaRO receives letter, dated April 23, 1993, containing water level elevation data for the onsite monitoring wells and information concerning the closure of the temporary holding pond used to store groundwater generated from dewatering during installation of the groundwater interception trench.

June 28, 1993 - WaRO receives letter, dated June 23, 1993, containing the results of the April railcar and groundwater sampling as required by their permit.

June 30, 1993 - WaRO receives letter, dated June 29, 1993, from DuPont, advising DEM that the plantiffs have supplied them with data concerning offsite groundwater conditions. DuPont feels the data is incomplete and has requested additional information, such as logbooks, well construction details, and laboratory supporting data. DuPont also states that they my be barred by a federal confidentiality order from providing DEM with this data.

July 20, 1993 - DEM receives request from DuPont to remove (delete) the permitted daily flow rate restriction so that remediation can be accelerated. Since our review of the submitted effluent sampling/analysis (rail car) indicate the treatment plant is meeting all effluent limits we have no objections to increasing the daily flow rate.

August 20, 1993 - Pump and Haul permit is modified to increase the maximum daily flow limit from 7200 GPD to 20,000 GPD.

October 12, 1993 - WaRO receives letter, dated October 7, 1993, from DuPont containing results of July 1993 railcar and groundwater sampling as required by their permit.

October 15, 1993 - WaRO receives letter from DuPont, dated October 14, 1993, stating, among other things, that a federal judge had indefinitely suspended the time frame (July 1 - September 30, 1993) for DuPont to

conduct scientific testing of plantiffs property. This letter also contains information concerning the results of the plantiffs offsite investigations.

1994

January 6, 1994 - WaRo receives letter from DuPont, dated January 3, 1994, containing results of October 1993 railcar and groundwater sampling as required by their permit.

1994 (continued)

February 23, 1994 - WaRo receives letter from DuPont, dated February 21, 1994, containing results of October 1993 railcar and groundwater sampling as required by their permit.

HISTORY OF OPERATION

1969 -

- THIS PARTS CLEANING OPERATION BEGAN OPERATION USING HOT GLYCOL TO CLEAN REUSABLE METAL COMPONENTS NECESSARY FOR THE PRODUCTION OF POLYESTER FIBER.

- AFTER CLEANING IN HOT GLYCOL, THE PARTS ARE DRAINED, THEN RINSED WITH WATER AND DRIED.

- RINSE WATER CONTAINING TRACE AMOUNTS (UP TO ABOUT 2%) OF GLYCOL WERE DISCHARGED TO A DITCH WHICH DRAINED THROUGH A SWAMP INTO BEAVERDAM BRANCH.

- CONTAMINANTS IN THE RINSE WATER ARE WATER SOLUBLE AND BIODEGRADABLE WITH THE EXCEPTION OF TRACE AMOUNTS OF INERT POLYMERIC MATERIALS.

1982 -

- WORKING WITH STATE AUTHORITIES A SYSTEM WAS PURCHASED AND INSTALLED TO TREAT THE RINSE WATER PRIOR TO DISCHARGE.

- THIS SYSTEM PROVED UNSATISFACTORY EVEN AFTER EXTENSIVE MODIFICATIONS.

- WORKING CLOSELY AGAIN WITH THE STATE AUTHORITIES, IT WAS DECIDED THAT OFF-SITE BIOLOGICAL TREATMENT OF RINSE WATER WAS THE MOST APPROPRIATE SOLUTION.

1985 -

- BEGAN TRUCKING RINSE WATER OFF-SITE FOR BIOLOGICAL TREATMENT.

1987 -

- A RAIL SPUR WAS CONSTRUCTED TO ALLOW COLLECTION OF RINSE WATER FOR TRANSPORTATION AND TREATMENT.

HISTORY OF GROUNDWATER INVESTIGATION

1986 - o WORKING WITH STATE REGULATORY OFFICIALS,

- A SITE SURVEY PLAN WAS DEVELOPED
- MONITORING WELL INSTALLATION PERMITS WERE OBTAINED.

1987 - o MONITORING WELLS WERE INSTALLED.

o DU PONT MADE A VOLUNTARY COMMITMENT TO THE NEIGHBORHOOD TO INVESTIGATE PAST DISPOSAL PRACTICES.

o SAMPLES WERE COLLECTED AND ANALYZED FROM MONITORING WELLS AND SELECTED SURFACE WATERS.

o RESULTS FROM SAMPLE ANALYSES WERE REVIEWED WITH STATE PERSONNEL.

o IT WAS AGREED THAT ADDITIONAL SAMPLING WAS INDICATED TO FURTHER DEFINE THE POTENTIAL CONTAMINATION.

1988 - o ADDITIONAL MONITORING WELLS WERE PERMITTED AND INSTALLED.

o A SECOND PHASE OF COLLECTING AND ANALYZING SAMPLES FROM ALL MONITORING WELLS AND SELECTED SURFACE WATERS WAS COMPLETED.

- SECOND PHASE SAMPLE RESULTS WERE REVIEWED WITH THE STATE.

- DU PONT IS WORKING CLOSELY WITH STATE REGULATORY AUTHORITIES TO DETERMINE THE APPROPRIATE ACTION REQUIRED.

EDITORIAL CONTACTS

J. D. HENDERSON - 522-6445
J. G. RICHARDSON/R. J. HARGITT - 522-6725

RECHARGE OF THE SURFICIAL AQUIFER

Use of the treated groundwater to recharge the surficial aquifer was considered as a means of enhancing groundwater flow and reducing the cleanup time. As discussed in Appendix A, recharge in several areas was considered and modeled. The two areas that appeared to offer the best opportunity for recharge were the existing drainfields and the area along the south side of the facility. The modeling indicated that recharge along the south side of the facility provided both positive and negative results. Groundwater and contaminant flow to the south trench would be greatly enhanced, but the time required for water to flow to the north leg of the trench would be increased. The reasons for this are discussed in Appendix A. It was determined however that recharge to the existing drainfields (drainfields A and B) would be beneficial. Recharge in this area would enhance the flow of the apparent groundwater mound that was shown in Figure 2-2.

However, model simulations of the interior trench segment without recharge indicated better effectiveness and shorter travel times. Therefore, recharge was not considered further as a discharge option.

DISCHARGE THROUGH NPDES PERMIT

It is likely, especially during the wet season, that water in excess of what can be reused will be generated. Discharge of this treated water to the drainageway that is to be constructed on the north side of the property is a straightforward method. This ditch flows to Beaverdam Branch. Considering the relatively low flows (between 2.5 and 5 gpm) and the target cleanup levels, no impacts to the stream are anticipated.

As discussed in the following section on facility layout and operation, Du Pont is planning to implement the corrective action at Kentec in the fall of 1991. It is unlikely that a NPDES permit can be obtained prior to this time. Therefore, procurement of a NPDES permit will be initiated, but another interim method must be included to handle the excess water before the NPDES permit is obtained.

TRANSPORT AND DISCHARGE TO KINSTON WWTP OR POTW

This option represents a viable and readily implementable method for the disposal of the treated water until a NPDES permit can be obtained. Water that cannot be reused would be collected in a tank truck or rail car and transported to the Kinston plant WWTP approximately 1.5 miles to the south. There the water could be discharged directly to the WWTP aeration basin. The 1,000 to 5,000 gpd that may require disposal in this fashion would have a negligible impact on the 2.5 million gpd WWTP. Du Pont will obtain a pump and haul permit for this activity, and if required, modification of their Kinston plan NPDES permit.

A variation of this option would be to pump and haul the treated water to either the Kinston or Greenville POTW.

DISCHARGE UNDER THE SOC

On an interim basis, the treated water can be discharged to the drainageway at Kentec under the terms of the SOC. When the time frame established in the SOC runs out, then other discharge options, such as the NPDES permit, will have to be used.

SUMMARY OF OPTIONS AND SELECTED APPROACH

Reuse is the most attractive option for the discharge of treated groundwater. Under this option the water is utilized rather than simply disposed. Because excess water will likely be generated during certain times of the year, a NPDES permit will be pursued to discharge this excess water to the onsite drainageway. In the interim, prior to obtaining the NPDES permit, excess water may be discharged to the drainageway under the terms of the SOC or may be transported and disposed of in the Kinston plant WWTP or POTW.

WDCR542/039.51

Section 5
MONITORING PLAN

TREATMENT SYSTEM MONITORING

Monitoring of effluent from the treatment system is necessary to ensure the system is operating properly and that the target cleanup levels are met. Monitoring of the treatment system has been divided into a startup phase and full operation phase. During the startup phase, a specified volume of groundwater will be collected, treated, and analyzed prior to discharge. In this manner, effective operation of the treatment system can be obtained before groundwater is reused or discharged.

During full operation, effluent samples will be taken daily. The frequency of analysis will be dependent on the level of treatment obtained and the operational nature of the system. If the analysis shows that cleanup levels are being consistently achieved, samples will be analyzed on a less frequent basis. Conversely, after system disruption (e.g., changing of a UV lamp) samples may be analyzed on a daily basis.

The daily effectiveness of the treatment system will be monitored by analyzing effluent samples for DCA and DCE. These two compounds are more difficult to oxidize than 1,4-dioxane. Therefore, effective removal of 1,4-dioxane can be inferred if DCA and DCE are destroyed in the oxidation system. In addition, DCA and DCE can be analyzed with a gas chromatograph (GC) whereas 1,4-dioxane requires a GC and a mass spectrometer. Samples will be analyzed for 1,4-dioxane, DCA, DCE, and iron on a biweekly basis. Less frequent analysis may be required if the system is continuously meeting effluent requirements.

Shallow = 1. CAPTURE Zone deter.
2. Aerial Extent deter
3. Between Source & GIT

GROUNDWATER MONITORING

This section describes the shallow aquifer groundwater monitoring plan during and after remediation to evaluate the effectiveness of the groundwater collection system. Monitoring components contained within the plan include: 1) measuring water levels to determine the capture zone of the GIT, 2) collecting shallow aquifer groundwater samples and surface water samples from locations beyond the sources of contamination and the GIT, and 3) collecting shallow aquifer groundwater samples from locations between the sources of contamination and the GIT.

Primary elements of the groundwater monitoring plan include sampling locations, sample frequency, sample collection, and analytical protocol and quality control procedures.

SAMPLING LOCATIONS

Shallow aquifer groundwater sampling locations have been selected to provide monitoring points that will evaluate the progress of groundwater remediation. Groundwater samples will be collected from 14 locations (see Figure 5-1). All groundwater samples will be collected from existing monitoring wells and one new monitoring well (MW18). Descriptions of the monitoring well's construction are given in the Kentec Groundwater Assessment (CH2M HILL, 1991). Seven of the monitoring wells (MWs 1, 3, 4A, 6, 7A, 8, and 18) are between the contaminant source areas and the perimeter groundwater collection system. These wells will monitor the effectiveness of the groundwater cleanup within the contained area of the facility property. The remaining seven monitoring wells are located beyond the groundwater collection system (MWs 9, 10A, 11A, 12, 14A, 15, and 16). These wells will monitor the effectiveness of the groundwater collection system at limiting any further migration of contaminants beyond the property boundary. They will also evaluate the effectiveness of reclaiming any contaminated groundwater that has moved beyond the southern property boundary.

In addition, 1 sample will be collected from the trench at the time of groundwater sampling to correlate with contaminant concentration measurements currently being collected for treatment. Two surface water samples (SW11 and SW24) will be collected and analyzed during each round of sampling (see Figure 5-1). The five 50-foot deep monitoring wells (4B, 7B, 10B, 11B, and 14B) that monitor the upper portion of the Peedee aquifer should also be sampled.

SAMPLING FREQUENCY

Prior to the start up of the groundwater collection system, one round of samples will be collected and analyzed from all of the monitoring locations. For the first year of operation of the groundwater remediation system a round of samples will be collected and analyzed from all of the monitoring locations every 3 months. After the first year of remediation, it is anticipated that the frequency of groundwater sample collection will be reduced, possibly to a semi-annual basis until the end of remediation. The end of remediation will be when the concentrations of the target compounds are at or below the actions discussed previously within the collection trench and the seven interior monitoring wells or an asymptotic level is reached that has been agreed upon by the state.

At the conclusion of remediation, groundwater samples will be collected and analyzed from all of the monitoring locations on an annual basis for 3 years for post-remediation monitoring.

SAMPLE COLLECTION

Sample collection procedures are discussed in three steps: water-level measurement, purging, and sample collection.

Water-Level Measurements

Prior to each round of sampling, water levels should be measured in all existing monitoring wells, piezometers onsite, and at surface water bench masks as indicated on Figure 5-1. All water levels should be measured to the nearest 0.01 foot. Groundwater levels should be measured to the top of the protective steel casing.

Purging

Standing water should be purged from the groundwater monitoring wells, allowing formation water representative of in-situ conditions to flow into the well for sampling. A dedicated, positive displacement bladder pump will be installed in each of the monitoring wells 6 inches from bottom. The bladder pumps will have a stainless steel and PVC body with a Teflon bladder. These pumps will be used to purge the standing water from the wells. Purging procedures vary depending on the yield of the well. A high yielding well recharges rapidly enough to be purged continuously until it is sampled. A low yielding well is purged until the well is dry; the water level is then allowed to recover sufficiently so that an adequate volume of water for sampling reenters the well.

Measure the following field parameters after each well volume of purge water or after the well has recharged from being pumped dry: pH, specific conductivity, and temperature. Continue purging until the conductivity, temperature, and pH values vary by less than ±10 percent for three consecutive well volumes, or until the well is purged dry.

Sample Collection

When the purging has been completed or the monitoring well pumped dry and then allowed to recover to near static conditions, a groundwater sample will be collected from the bladder pump through the tubing and directly into the appropriate sample containers.

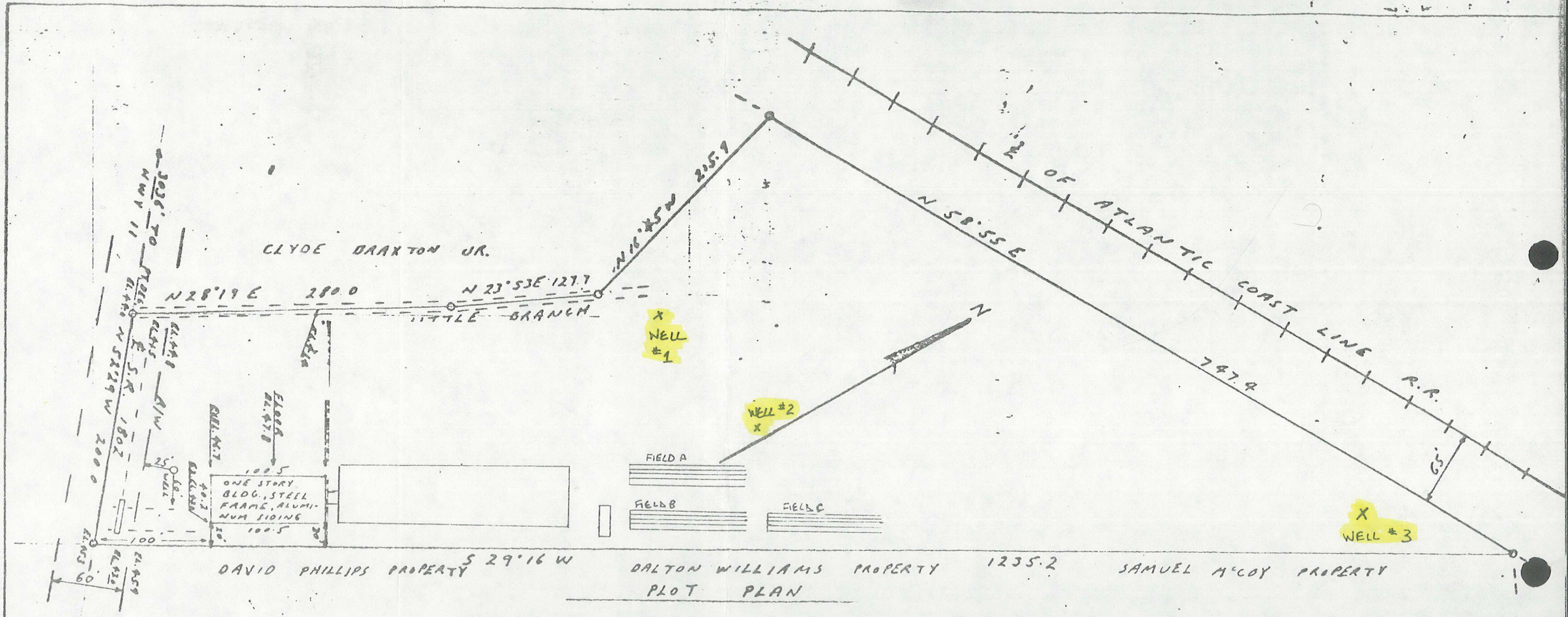
Surface water and trench water samples will be collected and transferred directly into the sample containers.

ANALYTICAL PROTOCOL AND QUALITY CONTROL PROCEDURES

All groundwater, surface water and water samples from the trench will be analyzed for the target compounds (1,4-dioxane, DCE, and DCA) at the action levels discussed previously. 1,4-Dioxane will be analyzed using EPA method 8015 and DCE and DCA will be analyzed using EPA method 601.

Two duplicate samples will be collected and analyzed to provide a check on the quality of the laboratory analyses. Any equipment that is reused at each well for groundwater sampling will be cleaned to limit the possibility of cross-contamination between samples.

WDCR528/056.51



PLOT PLAN

FOR JAMES ENTERPRISES OF PITT COUNTY N.C.
AND BEING THE LAND AS RECORD IN DEED BOOK
633 PAGE 326 IN THE LENOIR COUNTY REGISTRY
AND BEING LOCATED IN THE CONTENTNEA NECK
TOWNSHIP LENOIR COUNTY N.C. DECEMBER 20, 1971
KENNETH RAY NOBLE R.S.L-922 KINSTON SCALE-1"=100'

Kenneth R. Noble

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

CHARLOTTE WEST QUADRANGLE
NORTH CAROLINA—MECKLENBURG CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

E.4. Offsite Well(s)

Subdivision reported by DEM to be on ground water.

Mapped, edited, and published by the Geological Survey

Control by USGS, NOS/NOAA, and North Carolina Geodetic Survey

Topography by photogrammetric methods from aerial photographs taken 1965. Field checked 1968

Polyconic projection
10,000-foot grid based on North Carolina coordinate system
1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue. 1927 North American Datum

To place on the predicted North American Datum 1983 move the projection lines 10 meters south and 17 meters west as shown by dashed corner ticks

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

Red tint indicates areas in which only landmark buildings are shown

Revisions shown in purple compiled from aerial photographs taken 1976 and other source data. This information not field checked. Map edited 1980

Purple tint indicates extension of urban areas

UTM GRID AND 1980 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ROAD CLASSIFICATION

Primary highway, all weather, hard surface
Secondary highway, all weather, hard surface
Light-duty road, all weather, improved surface
Unimproved road, fair or dry weather
Interstate Route
U. S. Route
State Route

CHARLOTTE WEST, N. C.

N3507.5—W8052.5/7.5

1968
PHOTOREVISED 1980
DMA 4854 III NW—SERIES V842

INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1981

E.4. Offsite Well(s)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

AREONCA SITE

FORT MILL QUADRANGLE
SOUTH CAROLINA—NORTH CAROLINA
7.5 MINUTE SERIES (TOPOGRAPHIC)

Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1965. Field checked 1968

Polyconic projection.
10,000-foot grids based on South Carolina coordinate system, north zone, and North Carolina coordinate system
1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue. 1927 North American Datum

To place on the predicted North American Datum 1983 move the projection lines 10 meters south and 17 meters west as shown by dashed corner ticks

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

Revisions shown in purple and woodland compiled from aerial photographs taken 1976 and other source data. This information not field checked. Map edited 1980

UTM GRID AND 1980 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

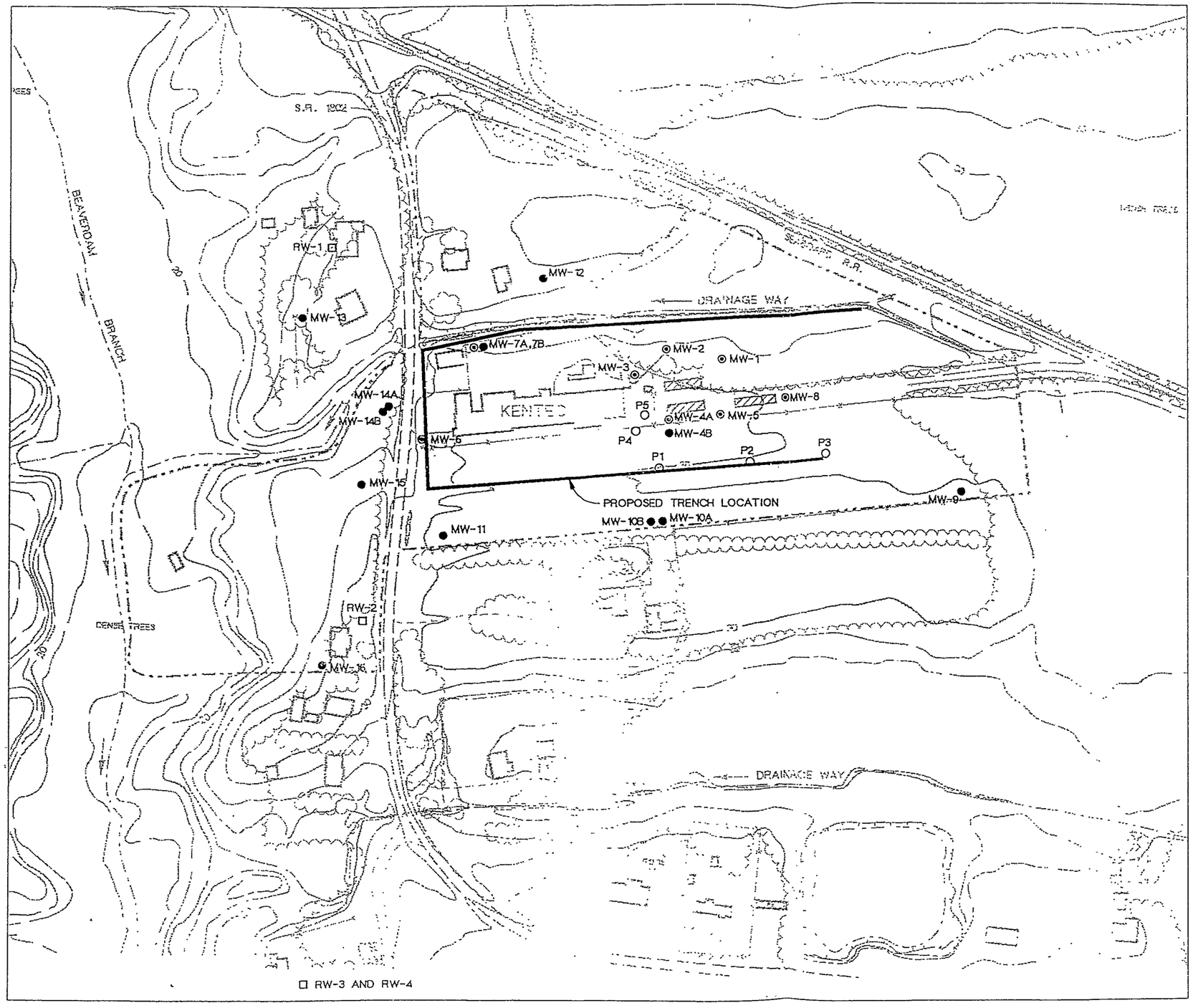
ROAD CLASSIFICATION

Primary highway, all weather, hard surface
Secondary highway, all weather, hard surface
Light-duty road, all weather, improved surface
Unimproved road, fair or dry weather
Interstate Route
U. S. Route
State Route

FORT MILL, S. C.—N. C.

N3500—W8052.5/7.5

1968
PHOTOREVISED 1980
DMA 4854 III SW—SERIES V846



LEGEND

- PHASE 1 AND 2 MONITORING WELL
- PHASE 3 MONITORING WELL
- RESIDENTIAL WELL
- PIEZOMETERS

NOTE: BASE MAP COMPILED FROM AERIAL PHOTOGRAPHY FLOWN ON 2/10/89.

0 100 200 300

SCALE: 1"=200'

Figure 1

PROPOSED LOCATION OF THE RECOVERY TRENCH
Du Pont Kentec Facility

CH2MHILL

2398wmC3.dgn 8-May-1991